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REPORT

TO THE SPECIAL COMMISSION ON THE REORGANIZATION OF HIGHER EDUCATION

February 14, 1980

University of Massachusetts

Each year the University of Massachusetts enrolls more than 32,000 students on our three campuses. Each year we touch the lives of an additional one million people through our network of extension and technical assistance programs. Our budget from all sources - state, federal, private, and student fees - exceeds $275 million a year. We are a major public resource: a comprehensive, land-grant university whose three campuses serve the Commonwealth in many and diverse ways, and together constitute the largest university - public or private - in New England.

Although our roots go back more than 100 years to the founding of the Massachusetts Agricultural College in 1863, the University has grown to maturity only during the last 20 years. We appreciate the generous support of the Commonwealth that has made growth possible. The period of rapid growth has ended, however, and it is clear, as the existence of this Commission indicates, that now is the time for planning for the new tasks and conditions of the future. It is in that spirit that we present this report.

The University of Massachusetts is a complex institution, one that offers a full range of programs, both graduate and undergraduate, in the fields of liberal studies and the professions. It is a center of intellectual inquiry, with a faculty committed equally to teaching and research. The University of Massachusetts is also a land-grant institution, one of the first brought into being throughout the nation by the Morrill Act of 1862. In addition to teaching and research it has a special obligation to provide the citizens of the Commonwealth with service and technical assistance. This three-fold mission - teaching, research, public service and technical assistance - is a university-wide obligation, shared by all three campuses and by all levels of instruction. I have, therefore, chosen to organize this

report to the Commission in terms of these three aspects of the university's mission rather than through a campus by campus presentation.

In adopting such an approach, I wish to emphasize three points at the outset. First, the three parts of the University's mission are fundamentally related. Teaching at a university level is often directly based upon ongoing research. Research, in turn, supports and finds expression in programs of public service and technical assistance. Public service at the University significantly extends its teaching and research functions.

Second, within this historical overall mission we recognize the need for continuous change. The balance among the three parts shifts as the needs and concerns in society at large change. As we enter the 1980's, applied research, public service and technical assistance are once more coming to the fore among university functions.

Third, as the University has taken on new responsibilities, we have found new ways to carry out our basic mission with the additions of an urban campus and a medical school. The 80's will offer more changes; for example, greater numbers of part-time and older students will inevitably require new ways to meet their needs, a trend already evident on the Boston campus.

As I discuss each part of the University's mission, I will touch in more detail on ways the University is responding to changing conditions and new challenges. In addition, at the end of this report, I shall discuss three influences which condition our immediate future and our plans to cope with them. I will begin with a brief overview of the basic organization of the University and its component parts: students and alumni, faculty and staff, the physical plant and a look at some basic features of its budgets.

I. University-wide Overview

As the chart indicates, the University is comprised of three campuses: Amherst, Boston and Worcester, each with a Chancellor who reports to the President. The Office of the President and other parts of the University Administration are located at 250 Stuart Street in Boston. Ultimate statutory responsibility for governing the University is vested in a twenty-six member Board of Trustees of whom seven are ex-officio, two are students elected by their peers, and seventeen others are appointed by the Governor for [illegible] terms.

The campuses have a high degree of operational automony, including separate budgets, but the President is the principal executive with overall administrative responsibility for the University. The Chancellors report to him and he reports directly to the Board of Trustees.

The University is not just an organizational structure, it is a complex network. Our activities reach out to the entire state. The first slide shows the many places at which teaching occurs, including such off-campus programs as the Area Health Education Centers, the School of Engineering's masters programs throughout the state, and the Boston-Nantucket program. The second slide shows the university's research sites. The third slide adds the many places at which service activities of all three campuses and several university-wide programs take place. When these three maps are combined, it becomes clear that to describe the University as three separate, self-contained campuses is to present a limited view of its actual scope. Ours is truly a state-wide institution, with many connections among its parts.

Keeping this state-wide unity in mind, here is some descriptive information about each campus.

The University at Amherst is a mature, graduate and undergraduate university center. It is mainly residential, housing more than 11,000 students in the nation's sixth largest residence hall system. At present, head count enrollment on the Amherst campus is about 18,600 undergraduates plus 5,000 graduate students.

The University at Boston is an emerging, non-residential university center, still predominantly undergraduate, located at its present site since 1974. The head count enrollment at Boston is about 7,800 undergraduates and 1[illegible] graduates.

On both campuses, our students come from all parts of the Commonwealth. The Amherst campus has at least 400 students from each of the counties in the state, exluding Nantucket and Dukes, and presently admits about twenty-five percent of its incoming class from the greater Boston area. The Boston campus, even as a commuter school, draws students from as far away as Cape Cod. There is a comparable diversity in socio-economic backgrounds. Boston estimates that fifty-six percent of its students come from families with less than $15,000 annual taxable income. Both campuses offer access to higher education for substantial numbers of minority students; they make up sixteen percent of the students at Boston and seven percent at Amherst. Amherst attracts a higher proportion of out-of-state students. Most important, our students are academically able: the median SAT Verbal Score at both Boston and Amherst is above the national average.

Both campuses provide opportunities in a wide range of extra-curricular activities which can mean as much for personal development as learning in the classroom - from the arts to athletics. The Amherst campus has an extensive intramural and inter-collegiate program for both men and women, with competition in the men's athletic program at the Division I level of the NCAA in

all sports except football. When the new gymnasium at the Boston campus opens, athletics and physical education will take on a broadened role.

The University at Worcester consists of the Medical School and the University Teaching Hospital. It currently has 409 medical students, 245 residents and eight students in its new Ph.D. program. In addition it provides clinical training for a large number of allied health students enrolled in a variety of programs in both public and private institutions. All of the medical students at Worcester are residents of the Commonwealth and an exceptionally high proportion - two out of every three - come from non-professional and non-managerial backgrounds. The fact that Worcester accepts only 158 out of almost 1000 applicants to fill an entering class of 100 is a measure of its high standards.

To teach these more than 32,000 students on all three campuses we have assembled a faculty of almost 2,000 persons: close to 1400 at Amherst, more than 400 at Boston and about 180 at Worcester. An impressive ninety-five possess the Ph.D. or the other appropriate terminal degree in their fields. They have come to the University from the leading graduate and professional schools of the nation as well as from faculty positions at other distinguished universities and colleges. They have, through their continued research and scholarship, gained for the University and the Commonwealth a reputation and distinction throughout the nation and indeed the world as a center of learning in fields as diverse as linguistics and polymer science, psychology and radioastronomy. It is an indication of our reputation that the Amherst campus is currently hosting six scholars from the People's Republic of China who have come to do research for a prolonged period, and that our Medical Center is

about to be one of the first in this country to have faculty exchanges with a Chinese medical school.

We are one of the largest employers in the Commonwealth and have a significant impact on the economies of the Amherst and Worcester areas. To operate our institutions, we require, in addition to faculty, a professional and non-professional work force totalling about 6,000 ranging from librarians and scientific technicians, to those who keep our plant maintenance, accounting, personnel, and campus security systems going, and those who work on the University farm. Without them, campuses as complex as ours would come to a standstill.

Those of you who have visited any or all of our campuses have most certainly been impressed by our physical facilities. I hope that these views of the Amherst, Boston and Worcester campuses will serve either as a reminder or as an invitation. I will not bore you with detailed statistics on square feet of buildings or miles of highway, but the bare facts of the magnitude of the Commonwealth's investment are impressive. We estimate that the value of the combined physical plant is close to half a billion dollars. We view our physical plant with pride but we are also concerned about its future as the demands of costly maintenance and repair outstrip available funds.

Our 75,000 living alumni are the measure of our success as a place of learning. The vast majority have graduated in the past 20 years. Of this number, approximately 45,000 live in Massachusetts, contributing in innumerable ways to the well-being of the Commonwealth. Alumni support through annual giving has steadily grown. Last year 16,000 gave $400,000 dollars to the annual alumni fund. Alumni of the University occupy positions of importance in the business and public life of the Commonwealth. Four serve as

Trustees of the University. We take special pride in the fact that UMass Alumni now are the second largest alumni group in the General Court.

The Amherst campus recently completed a five year follow-up for the class of 1974. Despite the difficult job market they entered, the overall employment rate for undergraduate and graduate alumni was approximately ninety-eight percent. Over seventy-five percent of the undergraduate and over eighty-three percent of the graduate alumni saw their current employment as related to their major program at UMass. Interestingly, that perception was shared by graduates of Arts and Sciences as well as graduates of professional schools. Finally, they were overwhelmingly satisfied with their experience at UMass and with the quality of instruction and courses in their major programs.

To conclude this overview, let me quickly review some general features of our budget. As the accompanying chart indicates, the annual state appropriation is only forty-six percent of total University income. Substantial revenue comes from other sources, principally from more than $27 million in grants and contracts, which provides eighteen percent of the budget for academic programs in 1980. The next chart shows how all the funds are used. Most go to support teaching, research and service although the constant pressure of inflation keeps driving up the portion needed to operate and maintain the physical plant.

Students and their families share in the support of the University through tuition which flows into the general funds of the Commonwealth. This year tuition generates about $20 million in revenue. Current undergraduate tuition at Boston and Amherst is $625. This is nineteen percent higher than last year's tuition and will increase another twenty percent to $750 next year. At Worcester, the current annual cost is $3500, including an immediate

payment of $1100 and a deferred payback of $2400. But tuition is only a small part of the cost borne by students. Mandatory fees and, at Amherst, cost for room and board, bring the expense of attending the University, exclusive of personal budget to $2700 per year for undergraduates. At current cost levels three quarters of our undergraduates are eligible for financial aid. Financial aid is not a gift: of that distributed on all campuses last year, forty-five percent was in the form of loans, eleven percent in work-study support and forty-four percent in direct grants or scholarships.

II. Teaching

Let me now turn to a more detailed discussion of each of the three parts of the University's mission and begin by reviewing the scope and diversity of its teaching role. Perhaps the simplest way to present that diversity is to focus on the variety of academic programs offered. The slide shows the principal sub-divisions within the major curricular components of the university.

The Colleges of Arts and Sciences at Boston and Amherst, as at all comprehensive universities, lie at the center of academic life. Regardless of majors, every student takes many courses in the arts and sciences. In addition, the Colleges of Arts and Sciences offer a wide range of majors across the full spectrum of the basic disciplines, made even more extensive by the various options for individually designed programs. This same diversity is reflected in the professional schools --there are, for example, four distinct curricular divisions within the College of Business Administration at Amherst. Moreover we offer programs at UMass across the full range of degree levels, from the two-year programs of the Stockbridge School to the postgraduate medical residencies at Worcester.

Such diversity is one of the distinctive marks of the modern university. It reflects not only the explosion of knowledge in past decades but also the acceptance of a wide range of educational responsibilities. In a number of fields, the University of Massachusetts has either unique or primary manpower training responsibilities within the public sector.

At the undergraduate level, this is true in agriculture, forestry and fisheries, and in several specialized areas in the arts and sciences and in business administration. The unique responsibilty of the University is even more pronounced at the graduate level. The University grants MA and MS degrees in eighty-one programs and fifty-six doctoral degrees. And of course the the University's has the sole public role in medical education.

The University's teaching role has gone beyond its historic, and still critically important, mission of teaching 18 to 22 year olds in a residential setting. The development of the Boston campus was a direct response to the needs of an urban constituency - students who are often older and often part-time. Part-time students at Boston constitute about twenty percent of the enrollment, with forty-five percent of all students over twenty-five years old. We also have a student body that is older than the national average at the medical school.

Reaching out to new kinds of students - adults, usually part-time, often in-service - has brought forth an increased emphasis on what is often called non-traditional education. This may involve offering courses at new times and places and may take advantage of newer technologies. To give just a few examples: a contract with South Boston High School to offer programs to middle-level staff on site for credit; a video-taped master's level program in Electrical Engineering, offered to 90 Engineers at eight locations throughout

the state; continuing medical education available to health professionals at over 40 different community hospitals throughout the state.

We intend to extend these activities further to meet the growing needs of an older population in the 80's. For example, the University is now analyzing the prospects for a micro-wave link for continuing education connecting Boston, Worcester, Amherst and Pittsfield and is actively exploring the educational potential of other forms of telecommunications, especially the likely impact of cable TV.

As we reach out to new student populations in new ways, we recognize that we must also continue to pay attention to those students who have historically made up most of our undergraduate student body. More than we like now leave for the wrong reasons. It was because of this that faculty, administrators, and students at the Amherst campus came together recently for a day-long examination of problems of attrition and retention.

In concluding this discussion of teaching, I wish to re-emphasize that the University's teaching, undergraduate as well as graduate, rests upon a solid foundation of ongoing research. We expect the faculty not only to stay at the forefront of their fields through their own research activities but also, where appropriate, to encourage direct undergraduate participation in research and to offer advanced classes that reflect the state-of-the-art. These experiences help students know what it means to be an engineer or a sociologist, to enter programs of advanced study, or obtain good jobs.

We in the University are learning how to create educational change without net growth. We know that we must respond to new fields of study as well as to long-term shifts in social need and demand, and to the changing educational requirements of new student populations. And we recognize that we

must do so without substantial new resources. The establishment of the College of Public and Community Service at Boston, the growth of programs in computer and information science at both Amherst and Boston, and in engineering and in public health at Amherst have all been responses to social needs in a time of limited resource growth.

Undergraduate education is, and will remain the heart of the University's educational mission. But it is graduate study associated with research that distinguishes a university - any university - from a college.

We must maintain a strong, broadly based graduate program at Amherst, and develop appropriate graduate work at Boston. We must do so as a university, and we must do so to provide the citizens of the Commonwealth with their main, in some fields, only opportunity for advanced education in a public university setting. As knowledge has expanded, education beyond the bachelors degree has taken on increased importance in many professions: agriculture, forestry and fisheries, education, engineering and the health sciences. These are fields which bear directly on problems which confront the Commonwealth. Graduate education in them, as well as in the basic disciplines, when associated with research and technical assistance, remains one of the University's fundamental contributions to the Commonwealth.

III. Research

Research and scholarship are the activities which give a university intellectual vitality, and that is why we expect our faculty to engage in research, professional or creative activity in order to qualify for reappointment, promotion and tenure. Every year literally hundreds of articles and books are authored by the faculties on our three campuses, not to mention a large number of reports and presentations to conferences and meetings.

But, research and scholarly activity have outlets beyond the publication of books and articles in learned journals. They may result in materials that are used in our own classrooms and those of many other institutions. In the creative arts, they may culminate in exhibition or performance, like that of an Amherst campus group which gave a concert at Lincoln Center in New York last year. Each year sees the performance of new works by University of Massachusetts composers and musicians, and exhibits by University of Massachusetts painters and sculptors.

It is the quality, not simply the quantity of research that matters, and again, our faculty meets the test. Because of time, I can cite only limited evidence. Perhaps the most spectular recent accomplishment, warranting articles in Time and The New York Times, was the research by the radio astronomy group on the Amherst campus confirming experimentally Einstein's Theory of General Relativity. Such a breakthrough is by definition exceptional, but notable accomplishments occur regularly in all fields. Work of distinction is not confined to the Amherst campus. At Boston, for example, two faculty members have been nominated for the National Book Award, another for the Pulitzer Prize and still another for the prestigious Rockefeller Foundation Award. Within the past month, the research of two scientists at Worcester was featured as the lead story in the weekly Science section of The New York Times.

This rich and varied activity depends upon direct financial support from many sources, including state and federal governments, private foundations and business and industry. In recent years the mainstay for research has been the federal government, and the success of our faculty in the highly competitive federal grant system is a good measure of how well we are doing.

The accompanying chart shows the overall increase in federal grant support from fiscal year 1974 to 1979. The total is made up from a large number of grants, some as small as a few hundred dollars. Last year, we were awarded a total of 733 grants on the basis of 1220 applications.

In addition to our increasingly successful effort to seek federal research support, the University has recently undertaken a major capital campaign to raise $5,500,000 from private sources for urgently needed equipment for the School of Engineering. As I have recently announced, this effort has made an excellent start and is a good example of a closer alliance between the university and industry in meeting the needs of the Commonwealth through both teaching and research.

Research needs direct financial assistance, but to flourish it also requires a supportive environment -- the necessary laboratories and research equipment, computers, art collections and specialized library collections. Like all universities, we face severe problems in keeping up with of inflation inthe costs of books and periodicals and replenishing laboratories with state-of-the-art equipment. But we are also fortunate in what we have gained for ourselves and in association with others - for example, the Horace Mann Bond and WEB DuBois papers recently acquired by the Amherst library offer a rich resource for the study of black culture. At the Boston campus, with the arrival of the Kennedy Library as our next-door neighbor and the forthcoming state archives, we share access to a unique wealth of research materials in history and public affairs.

Research thrives in the proper intellectual climate. All three campuses strive to maintain an atmosphere of intellectual and creative ferment. The publication of journals, like the Massachusetts Review and Polity, the journal

of the Northeastern Political Science Association; the maintenance of a University Press of which some recent issues are displayed here, the hosting of state, national, and international meetings and symposia, such as the national meeting of the American Society for Engineering Education, expected to attract several thousand visitors to Amherst this summer, the presentation of art exhibits and concerts - all of these are a part of the sustaining climate of inquiry, creation and discovery.

We are committed to providing the proper environment for research on all three campuses, not only for the sake of research alone, but also because - as I have stated before - research is directly tied to the other two missions of the University. It is essential to the quality of both undergraduate and graduate education; provides the essential foundation for the University's effort in technical assistance and public service.

IV. Public Service and Technical Assistance

The third part of the University's mission, public service and technical assistance, lies at the heart of the land-grant tradition, and is a basic commitment throughout our University. The oldest version flows from Amherst in agriculture and, through Cooperative Extension, we have maintained and extended vigorous programs which now include nutrition, energy conservation and urban gardening. But we are adapting that tradition to other settings. At its last national meeting, the National Association of Land Grant Colleges and Universities formally established a separate urban affairs division. The University and its Boston campus are charter members and we are actively pursuing ways of extending our existing urban public service efforts. At the Medical Center the faculty in the Medical School and the staff of the University Teaching Hospital are major providers of public service. Through

its in-patient and out-patient services, the hosptial currently provides care to more than 100,000 people per year. Just as importantly, through such innovative programs as out-patient "day surgery" and the palliative care unit, the hospital is making advances in new modes of health-care delivery to the public.

But beyond that the Medical Center is an important factor in the state's system of health care delivery. We provide medical care in several state institutions for the retarded and mentally ill, we have several family practice units in a variety of locations, we train firemen, policemen and others throughout the state in Advanced Life Support and, through the network of Area Health Education Centers, we will have a major impact on the training and the updating of health care personnel.

Public service and technical assistance programs throughout the University are based on applied research, the application of knowledge gained from basic inquiry, to the solution of problems and the development of new processes and products. They also have an educational component, informing both specialists and the public about new ideas, issues and opportunities.

The Institute for Governmental Services is a representative example of public service and technical assistance programming. The Institute's study of childrens' services resulted in 1977 in the publication of the well known report The Children's Puzzle which gave impetus to major organizational changes in Human Services. The Institute also provides technical assistance to local governments, the annual "Cherry Sheet Conference" being the best known example. It trains public employees in every aspect of local government from tax assessors to fire chiefs and conducts training programs in a number of State agencies as well. Since its work began in 1972, the Institute has been

involved in 23 major research studies, 115 training programs, given technical assistance in some 20 community projects, and published 77 monographs, reports, handbooks and guides.

A second striking example is in the area of energy. Applied research at Amherst on alternative energy sources seeks to develop critically needed new technologies in solar energy. At the same time, and as a natural outgrowth of these interests, the Solar Utilization, Economic Development and Employment Project of the Division of Cooperative Extension conducts a state-wide program which provides free energy audits to households across the Commonwealth, a form of both technical assistance and public education.

Examples could be multiplied, from the practical benefits of research at the Marine Station at Gloucester that led to the control of "red tide" to the technical assistance offered community arts organizations by the Arts Extension Service. In the materials distributed we have listed major public service activities of the University.

As these examples suggest, the University is a stockpile of knowledge which can be mobilized through research and through technical assistance, as well as education, to serve the Commonwealth. We intend to do so in the future, as in the past.

V. Achieving Unity

The scope and diversity of the University which I have described has an essential coherence of purpose. The most important instruments for maintaining the unity of the University are its Board of Trustees and the University Administration. The Board consists of a group of outstanding and dedicated lay persons who are close to the problems of the University and who

therefore have a deep understanding of the nature and the needs of the institution. They have a fiduciary responsibility toward the Commonwealth which they are able to meet because, they have by law, commensurate fiscal and operational authority.

My staff and I have responsibility for the direction and management of the University under the authority of the Board of Trustees. We fulfill our central policy-making function in active consultation with the three campuses. To this end, I hold regular weekly meetings of the Executive Council, composed of myself, the Vice Presidents of Management and Academic Affairs and the three Chancellors. This insures the direct involvement of the Chancellors in the decisions of the University Administration.

To be more specific, I, with my staff, am responsible for University-wide planning, academic coordination, and management. Probably the most important responsibility of the President is the budget, for it is through the budget that we are able to determine the quality of the University and its efficiency of operations. I require that new programs be carefully scrutinized and new positions well justified.

I have under my direction a continuous review process that begins with the submission of budget requests, continues with the development of operating budgets for all funds in the University and includes a mid-year budget review to insure that stated goals are being met and that funds are being used as efficiently as possible.

Beyond this, my office has responsibility for reviewing all proposed new academic programs from the three campuses. We review and approve, subject to Board concurrence, all positive tenure recommendations. Over several years, we have developed new University-wide management systems which have led to efficiencies and economies of operations. We are

responsible for the University-wide personnel policies and procedures which affect more than 8,000 employees.

The University Administration has primary responsibility for faculty collective bargaining, since the faculty unit encompasses both the Amherst and Boston campuses. Not only are negotiations run out of my office, but so is the coordination of grievances, mediation, and arbitration cases. My office also coordinates the negotiations of the other 10 campus-based bargaining units to guarantee consistent and fair treatment for all employees.

The University Counsel and his staff provide, under my direction, legal services to all three campuses and in a period of growing litigiousness, the workload in this area mounts each year.

My office also coordinates physical facilities planning among the three campuses, reviews capital budgets, and represents me and the University in discussions with state agencies relating to physical facilities.

In addition to our management and policy-making responsibilities, my associates and I seek to foster cooperation and coordination among the campuses. We encourage educational linkages among the several parts, such as those between Cooperative Extension at Amherst and the Medical School in public health education, and the development of University-wide programs which will involve faculty from several campuses in such areas as urban problems and the needs of the aging.

I am charged by the Board of Trustees under the bylaws with the responsibility for serving as the spokesman for the University in relations with the public, the media, and the branches of state government.

VI. Turning to the Future

Having reviewed the three-fold mission of the University, I would like to turn, in conclusion, to three major forces affecting our future - continued inflation, demographic change, and long-term shifts in enrollment patterns.

Confronted by a likely extended period of inflation, the University is committed to a program of cost-efficient management. We have already had notable success in energy conservation. The Boston campus has reduced energy consumption by forty-four percent since 1974 at a savings of nearly $5,000,000. We have made additional savings in the areas of common management services, data processing and in the development of a cooperative purchasing plan.

We are taking a fresh look at how to use resources more effectively.

All three campuses have taken an active role in promoting efficiencies through voluntary cooperation among institutions - Amherst through the Five Colleges, Worcester through the Worcester Consortium and Boston through the Boston Six. In Boston and Worcester, in particular, discussions are continuing to find ways of closer, more effective cooperation.

Through a process of internal reallocation on each campus, we are seeking to adjust to a probable long-term shift in the balance of student interests between liberal arts and professional programs. The process at times seems slow, but having lived with the gyrations of student interests for twenty-five years, I find some inherent virtue in the essential conservatism of educational institutions. However, at both Amherst and Boston, we have already shifted resources to professional areas. That process will continue.

Conscious of the projected demographic changes well known to us and you, I have asked the Chancellors of the Amherst and Boston campuses to develop plans for orderly adjustment to changing enrollments over the next twelve to fifteen years. It is clear that a serious and sustained planning effort is required.

The starkness of some of the facts confronting the University of Massachusetts and, indeed, all the community of higher education should not lead one into a rhetoric of doom and gloom. We are proud of what the University has accomplished but there is more to be done.

Even at a mature and comprehensive institution such as UMass/Amherst, development and change will continue. The Boston campus has yet to realize fully its potential as a university center, though it is steadily moving in that direction. The medical center at Worcester is still in the process of defining its role as a health sciences center is examining the implications of its distinctive educational mission. The future will be a time of inevitable stress but we must strive to make it a time of opportunity as well.

What is at stake in the next decade is not just the future well-being of the University, although as one who has devoted his adult life to higher education, I believe that the University of Massachusetts is important in its own right. Rather what is at stake is the future of the Commonwealth. We have no oil or minerals, no stretches of fertile land, no vast forests - we have only ourselves, our people. We have built an economy and society out of our wits and our talents. In this current age, it takes knowledge and trained manpower to keep them going. It takes a University, and we - the University of Massachusetts - are here to help to meet the challenge.

APPENDIX

UNIVERSITY OF MASSACHUSETTS

FY80 FACT SHEET

	AMHERST	BOSTON	WORCESTER (MEDICAL SCHOOL)	TOTAL
HEADCOUNT STUDENTS	23,850	8,579	415	32,844
- Undergraduate	18,850	8,379	---	27,229
- Graduate	5,000	200	415	5,615
STAFF				
- Faculty	1,411	413	174	1,998
- Other professionals	420	145	60	625
- Classified	1,577	368	208	2,153
- Auxiliary Enterprise	1,454	---	2,092	3,546
DEGREE PROGRAMS/MAJORS				
- Undergraduate	85	24	---	109
- Masters	75	6	---	81
- Doctoral	55	0	1	56
- Medical	0	0	1	1
SOURCES OF FUNDING				
- State	$86,979,100	$25,182,350	$12,805,032	$124,967,082
- Federal	29,017,322	2,799,009	9,384,722	41,201,053
- Other[1]	52,594,068	4,146,543	9,299,749	66,040,360
CATEGORIES OF EXPENDITURE OF STATE MAINTENANCE FUNDS[2]				
- Wages and Salaries	76%	74%	79%	76%[4]
- Services	6%	6%	1%	5%
- Utilities	9%	8%	11%	8%
- Administrative Supplies and Expenses	9%	12%	9%	11%
SQUARE FOOTAGE OF PLANT				
- Academic Facilities	6,016,468	1,791,129	981,100[3]	8,788,697
- Residential Facilities	3,096,694	---	--	3,096,694
ASSESSED VALUE OF PLANT	$184,290,457	$88,417,000	$138,981,000	$411,678,457

1. Trust Funds, Fees, Non-Federal Grants & Contracts, Research Overhead
2. Does not include state special appropriations
3. Not included: square footage of Hospital -- 740,900
4. University Administration and Institute for Governmental Services included in totals.

DEGREE PROGRAMS

The following pages list all program areas of the three campuses of the University of Massachusetts and the degree(s) offered in each area. The list portrays the diversity of programs and disciplines represented in the University's curriculum. It also shows the diverse nature of the faculty necessary to provide the curriculum.

DEGREE PROGRAMS - ALL CAMPUSES

HUMANITIES AND FINE ARTS	B.A.	M.A.	Ph.D.	Undergrad. Courses offered, but no degree
Afro-American/Black Studies	X			
Art Education	X	X		
Art History	X	X		
Art Design	X	X		
Art Studio Art	X	X		
Asian Studies - Chinese	X			
Asian Studies - Japanese	X			
Classics	X	X		
Comparative Literature	X	X	X	
English - Literature	X	X	X	
English - Writing				X
English - Film				X
English - Folklore				X
English - Master of Fine Arts		X		
French	X	X	X	
Italian	X			
Germanic Language & Literature	X	X	X	
History	X	X	X	
Journalistic Studies	X			
Linguistics		X	X	X
Music	X			
Music Education	X	X		
Music History		X		
Music - Performance	X	X		

HUMANITIES & FINE ARTS CONTINUED...	B.A.	M.A.	Ph.D.	Undergrad. courses offered, but no degree
Music Theory and Composition	X	X		
Music - Dance	X			
Philosophy	X	X	X	
Slavic Studies		X		X
Russian				
Spanish	X	X	X	
Portuguese				X
Theater Arts	X	X		
SOCIAL AND BEHAVIORAL SCIENCES				
Anthropology	X	X	X	
Interpersonal Communication & Rhetoric	X	X	X	
Mass. Communication	X	X	X	
Economics	X	X	X	
Political Science	X	X	X	
General Psychology	X			
Biopsychology		X	X	X
Clinical Psychology		X	X	X
Cognitive Processes		X	X	X
Child Psychology		X	X	X
Educational Psychology		X	X	X
Personality		X	X	X
Social Psychology		X		X
Sociology	X	X	X	

NATURAL SCIENCES AND MATHEMATICS	B.A.	M.A.	Ph.D.	Undergrad courses offered, bu no degree
Biochemistry	X	X	X	
Biology	X	X		
Botany	X	X	X	
Chemistry	X	X	X	
Computer and Information Sciences		X	X	
Geology	X	X	X	
Geography	X	X		
Marine Sciences				X
Mathematics	X	X	X	
Microbiology	X	X	X	
Physics	X	X	X	
Applied Physics		X		
Astronomy		X	X	
Polymer Science & Engineering		X	X	
Pre-Dental	X			
Pre-Medical	X			
Pre-Veterinarian	X			
Zoology	X	X	X	
INTER DEPARTMENTAL				
Judaic Studies	X			
Near Eastern Studies	X			
Soviet & Eastern European Studies	X			
Social Thought & Political Economics	X			
Critical & Creative Thinking		X		

FOOD AND NATURAL RESOURCES	B.A.	M.A.	Ph.D.	Undergrad. courses offered, but no degree
Entomology	X	X	X	
Environmental Science	X			
Food & Agricultural Engineering		X	X	X
Food & Resource Economics	X	X	X	
Food Science and Nutrition		X	X	
Human Nutrition	X	X	X	
Forestry	X	X	X	
Wood Technology	X	X	X	
Natural Resources Studies	X			
Fisheries Biology	X	X	X	
Wildlife Biology	X	X	X	
Home Economics	X			
Hotel, Restaurant & Travel Adm.	X	X		
LAND ARCHITECTURE & REGIONAL PLANNING				
Environmental Design	X			
Park Administration	X			
Lanscape Architecture		X		
Regional Planning		X		
Leisure Studies & Services	X			
Plant & Soil Sciences	X	X	X	
Plant Pathology	X	X	X	
Veterinary & Animal Sciences	X	X	X	

MANAGEMENT & BUSINESS ADMINISTRATION	B.A.	M.A.	Ph.D.	Undergrad. courses offered, but no degree
Accounting	X			
General Business & Finance	X			
Health Services Administration	X			
Marketing	X			
Management	X			
Organizational Behavior	X			
Public Administration	X			
Public & Private Finance	X			
Management Science	X			
Business Administration		X	X	
EDUCATION				
Human Services & Behavioral Sciences	X			
Instructional Leadership	X			
Educational Policy, Resources & Administration	X			
Education		X	X	
ENGINEERING				
Chemical Engineering	X	X	X	
Civil Engineering	X	X	X	
Environmental Engineering		X	X	
Ocean Engineering		X	X	
Electrical & Computer Engineering	X	X	X	
Computer Systems Engineering	X			
Industrial Engineering	X	X	X	

ENGINEERING CONTINUED...	B.A.	M.A.	Ph.D.	Undergrad. courses offered, but no degree
Mechanical Engineering	X	X	X	
Manufacturing Engineering		X		
HEALTH SCIENCES				
Communications Disorders	X	X	X	
Nursing	X	X		
Public Health	X	X		
PHYSICAL EDUCATION	X			
Athletics				X
Exercise Science		X	X	
Sport Studies		X	X	
MEDICAL EDUCATION **			X	
PUBLIC AND COMMUNITY SERVICE	X			
SPECIAL PROGRAMS				
Individual Concentration	X			
Legal Studies	X			
Women's Studies	X			
Labor Relations		X		

**M.D. and Ph.D. degree programs

UNIVERSITY SERVICE ACTIVITIES

University Service Activities -- A Representative Listing

Cranberry Experiment Station--Wareham. Conducts fundamental and practical research in support of the Commonwealth's largest agricultural export product. Operates frost warning system to protect bogs.

Suburban Experiment Station--Waltham. Research subjects range from new strains of vegetable and flowering plants to effect of air pollution on vegetation. Provides soil testing and in-person and telephone counselling for home gardeners. Practical support for commercial greenhouses, a major agricultural industry.

Nantucket Field Station--Nantucket. Site for research into ecology and history of island. Assists oyster breeding industry by moving oysters to salt marshes to help maturation process. A major community resource during Argo Merchant oil spill cleanup.

Marine Station--Gloucester: Major responsibility for discovering deadly "red tide" blooms. Research underway into new methods of processing fish, especially underutilized species. Community outreach through ecology programs for school children.

Cooperative Extension. Offices in virtually every county. Work with farmers, 4-H groups, dairymen. Nutrition programs in urban areas;."Greenstock" urban gardening program in Boston.

Engineering Videotape and extension program. Twelve graduate programs per semester offered at industrial sites across the state. Videotaped engineering courses available to community colleges. M.S. in Manufacturing Engineering available at indistrial plants.

Tri-River Health Center, Uxbridge. Joint community-UM/W program built and operates family health center in medically underserved area.

Institute for Labor Affairs. Training programs at the union local level.

Institute for Governmental Services: Training programs for municipal officials; research for state and local agencies.

Student internships: wide variety of programs--helping people file income taxes, assisting in state hospitals, working with small business firms.

Energy Extension program, UM/A. Variety of programs in energy conservation, alternate sources. Installation of experimental solar heating systems for homes of low-income families.

Programs for handicapped students: campuses well adapted to needs of handicapped; special services available.

Massachusetts Economic Policy Analysis Model Prof. George Treyz, UM/A, and associates have computer model of state economy which allows sophisticated analysis of economic consequences of policy decisions, e.g. tax change.

Massachusetts Higher Education Consortium. Led by Jake Bishop of UM/A, 42 institutions of higher education pool purchasing needs. One of only two such consortia in U.S. FY78 savings, $668,000 on spending of $2.2 million.

Minority/Women vendor program. Currently slightly exceeding Trustee goal for current year. Publishes Minority Vendor Directory.

School of Business Administration at UM/A is a participant in the SMall Business Institute. Through it, students act as consultants to at least 10 small firms in western Massachusetts, helping them with operational problems.

Through CCEBS, Bilingual Collegiate Program, Minority Engineering Program, etc., university provides special assistance to blacks and other minorities.

Arts Extension Service, UM/A--Modelled after Cooperative Extension, provides technical and organizational assistance for community arts-oriented organizations.

School of Education/Institute for Learning and Teaching. School of Education, UM/A has won national recognition for work at Boston English High School. ILT has been active in a number of Boston schools and as resource for teachers.

Prison program, UM/B--Faculty members teach in state prisons.

Water Resources--Public Health--A currently active research project funded through the Water Resources Research Center is exploring the relationship of sodium (largely from road salt) in drinking water and elevated blood pressure levels. Results are not fully in, but preliminary findings suggest a strong correlation, with considerable public policy implications for at least a third of Massachusetts communities with high sodium levels in their water supply.

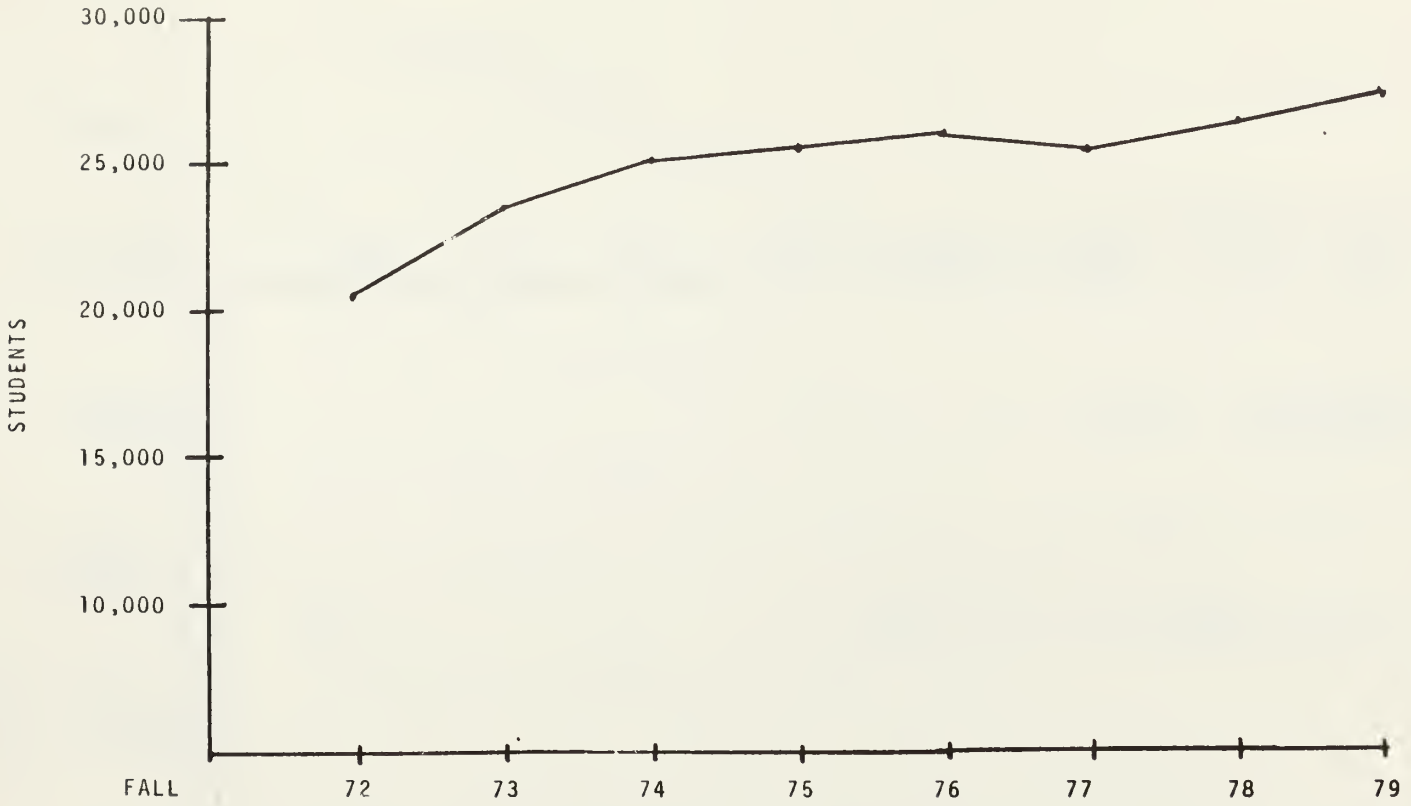
National Park Service Research Unit, in cooperation with UM/A, is studying erosion of Cape Cod beaches and effect of such factors as off-road vehicles.

ENROLLMENT

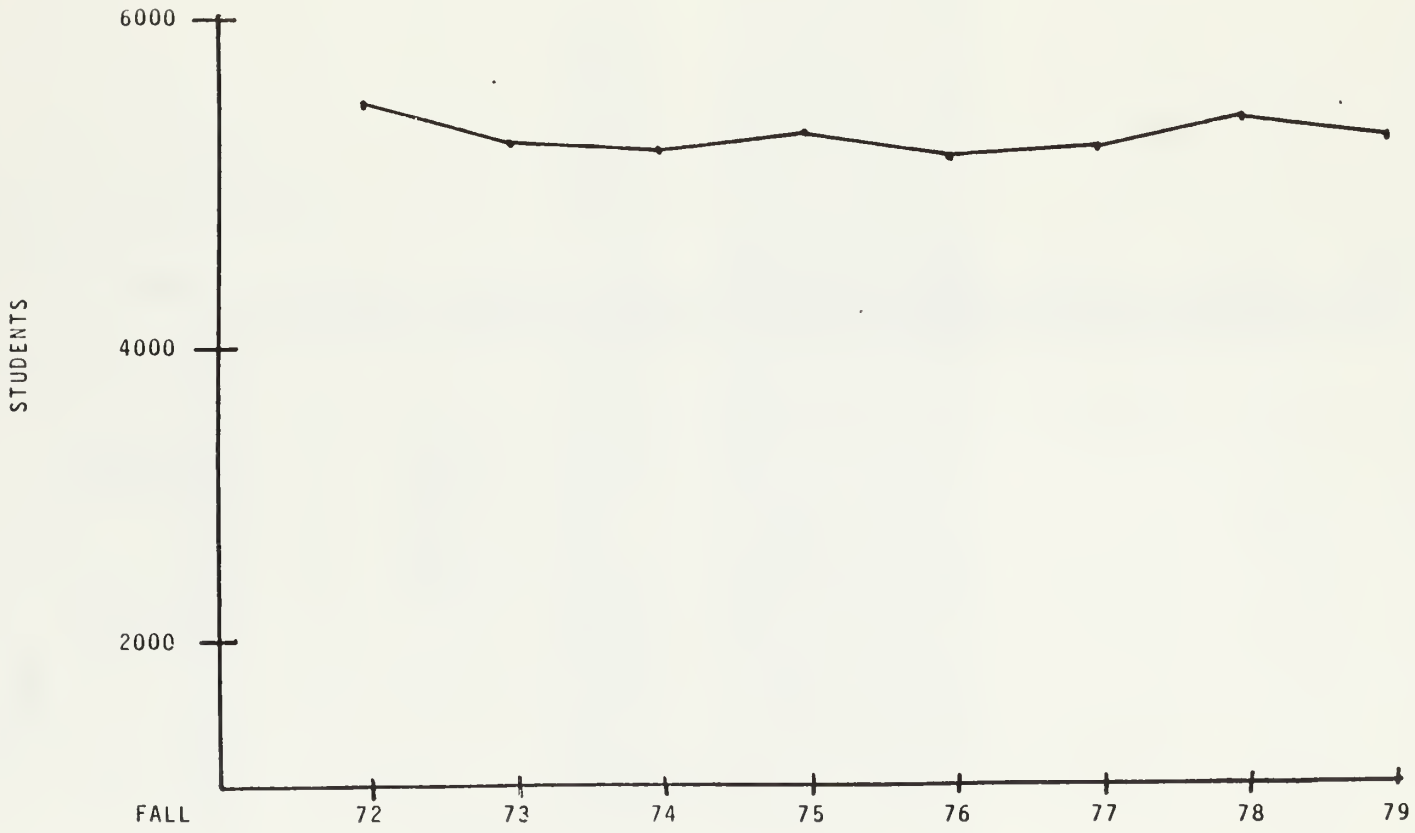
Tables E-1 through E-7 depict salient points in the enrollment history of the University of Massachusetts. Tables E-1 and E-2 show that the University has a stable graduate enrollment. Its undergraduate enrollment has grown about 30% since 1972.

The remaining tables show the relationship between the number of applications received and the enrollments yielded since 1975. Tables E-3 and E-4 indicate that the freshmen enrollment rate on the Amherst and Boston Campuses has remained stable, despite a drop in the number of applications. This is due to increasing percentage of the applicants actually enrolling at the University. Tables E-5 and E-6 depict a similar pattern for transfer students. Finally, Table E-7 shows that the percentage of enrollments against applications at the Medical School has remained steady at around 10% since 1976.

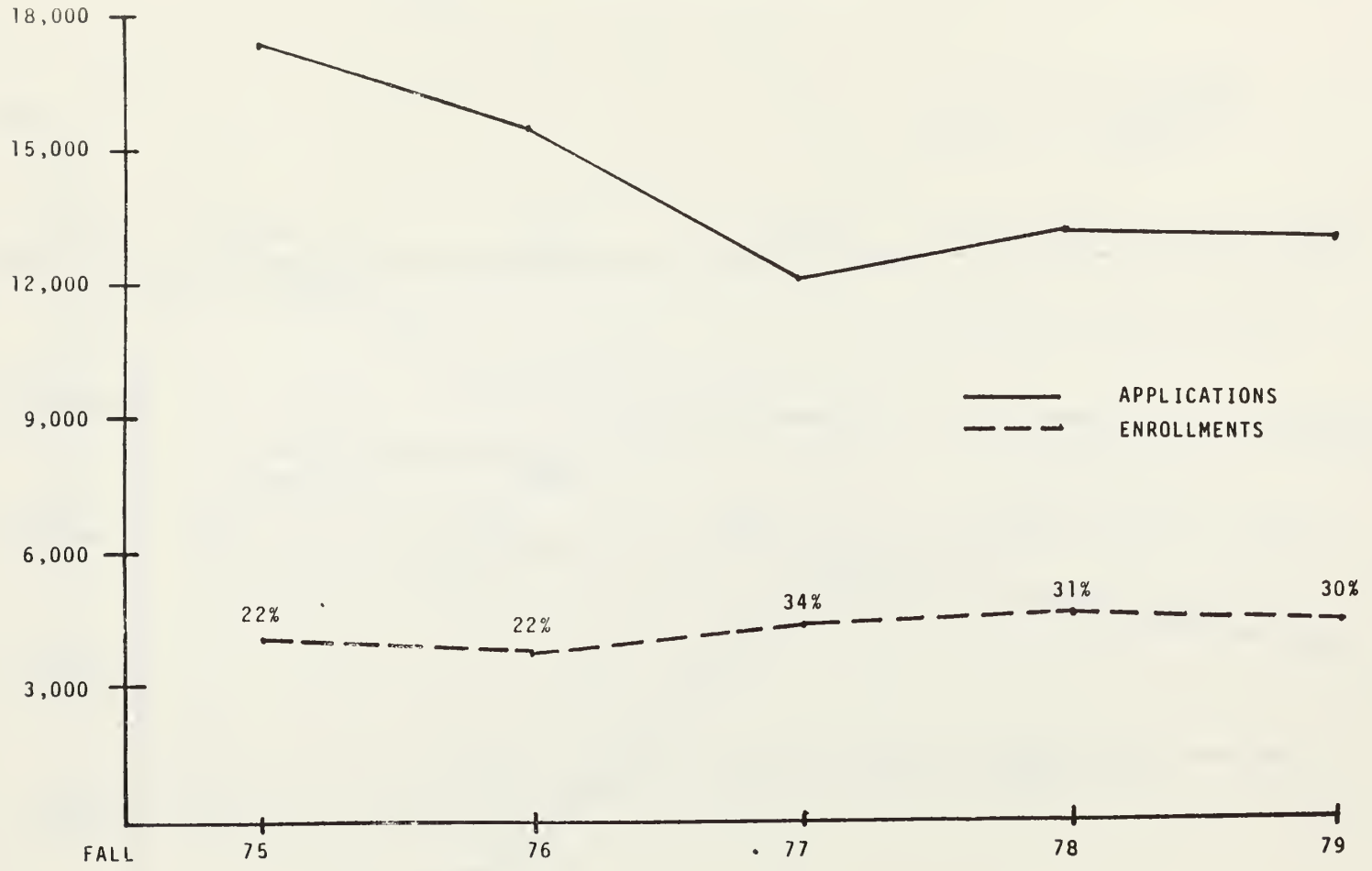
UNIVERSITY UNDERGRADUATE ENROLLMENT



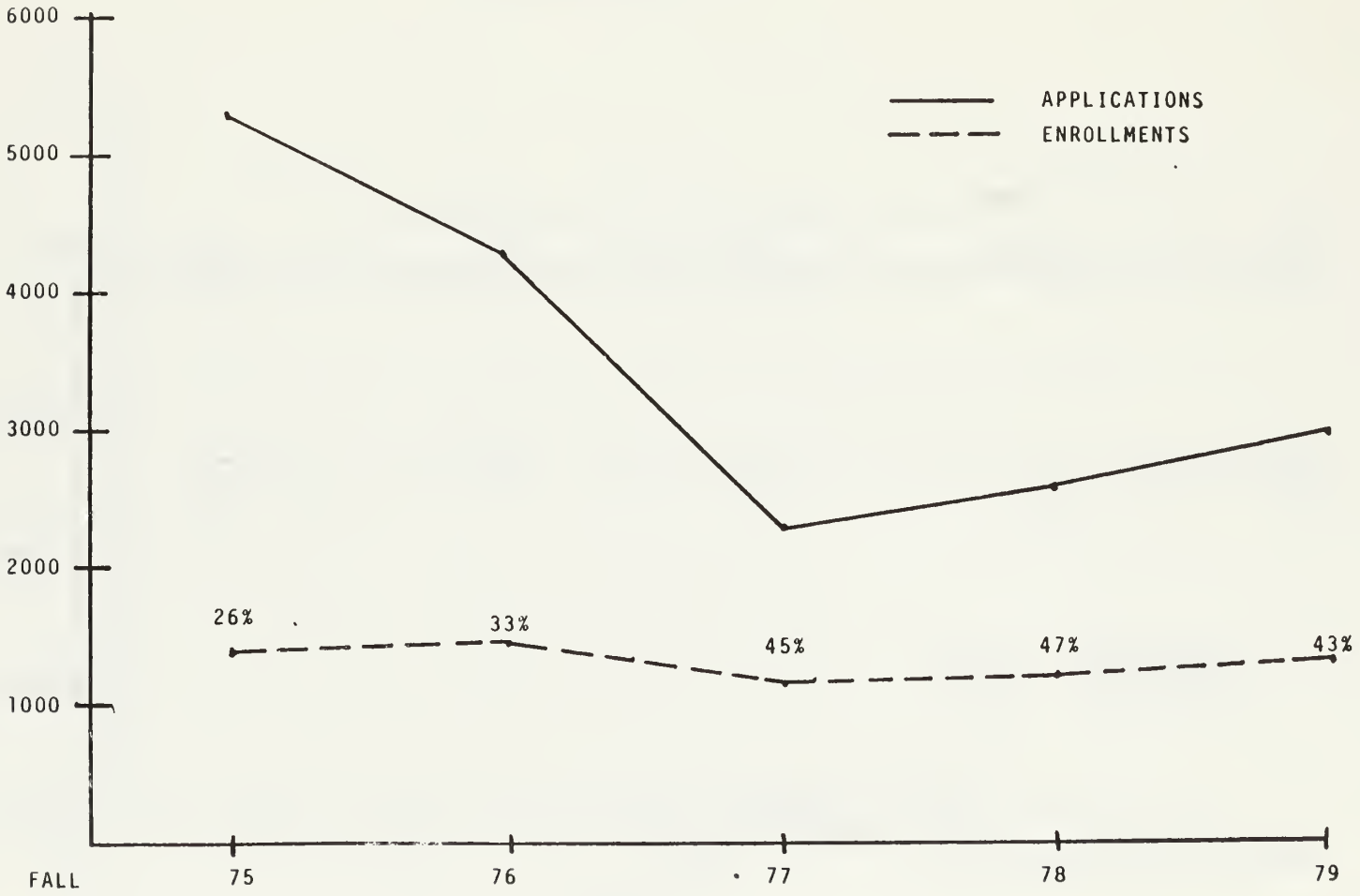
UNIVERSITY GRADUATE & GRADUATE PROFESSIONAL ENROLLMENT



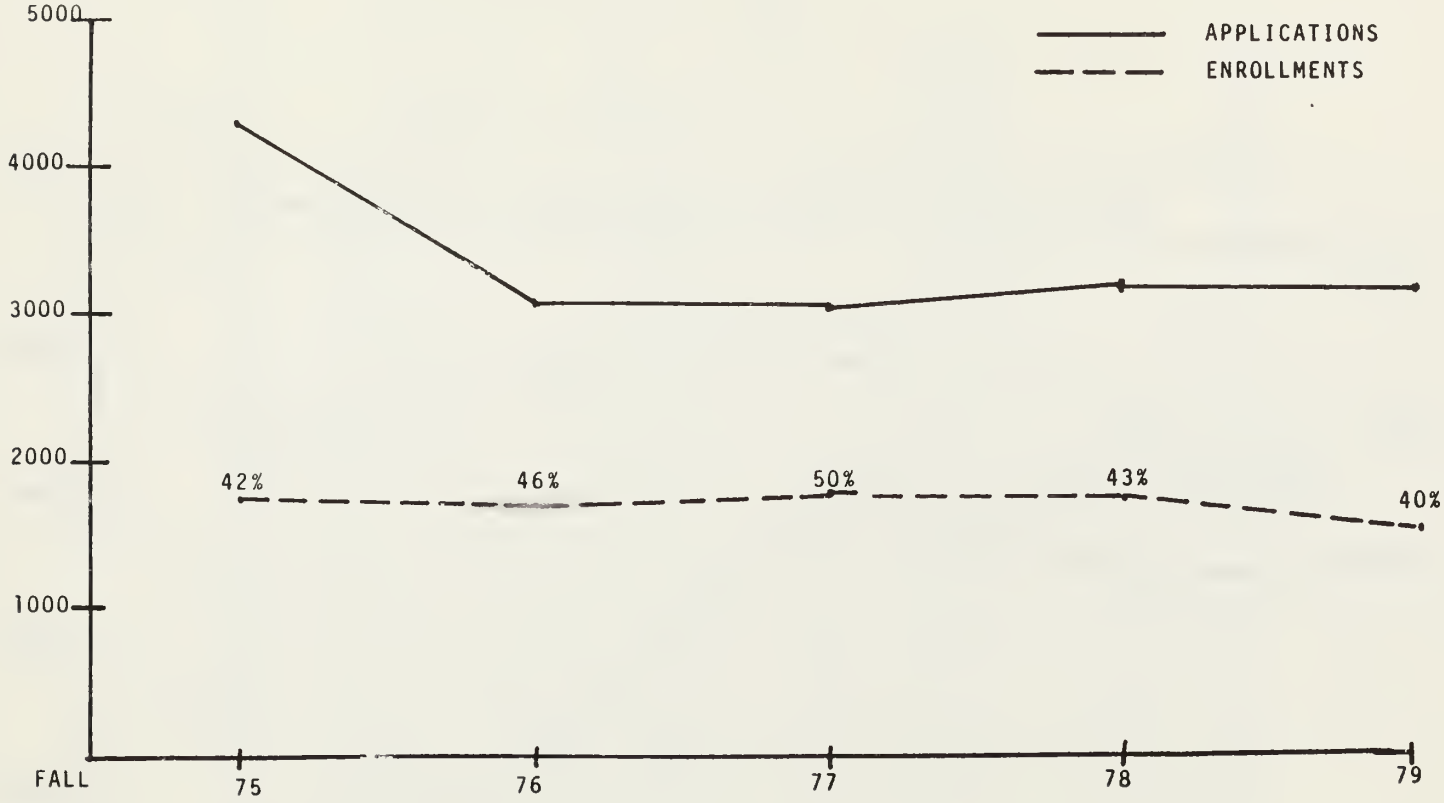
AMHERST FRESHMAN
Applications and Enrollments



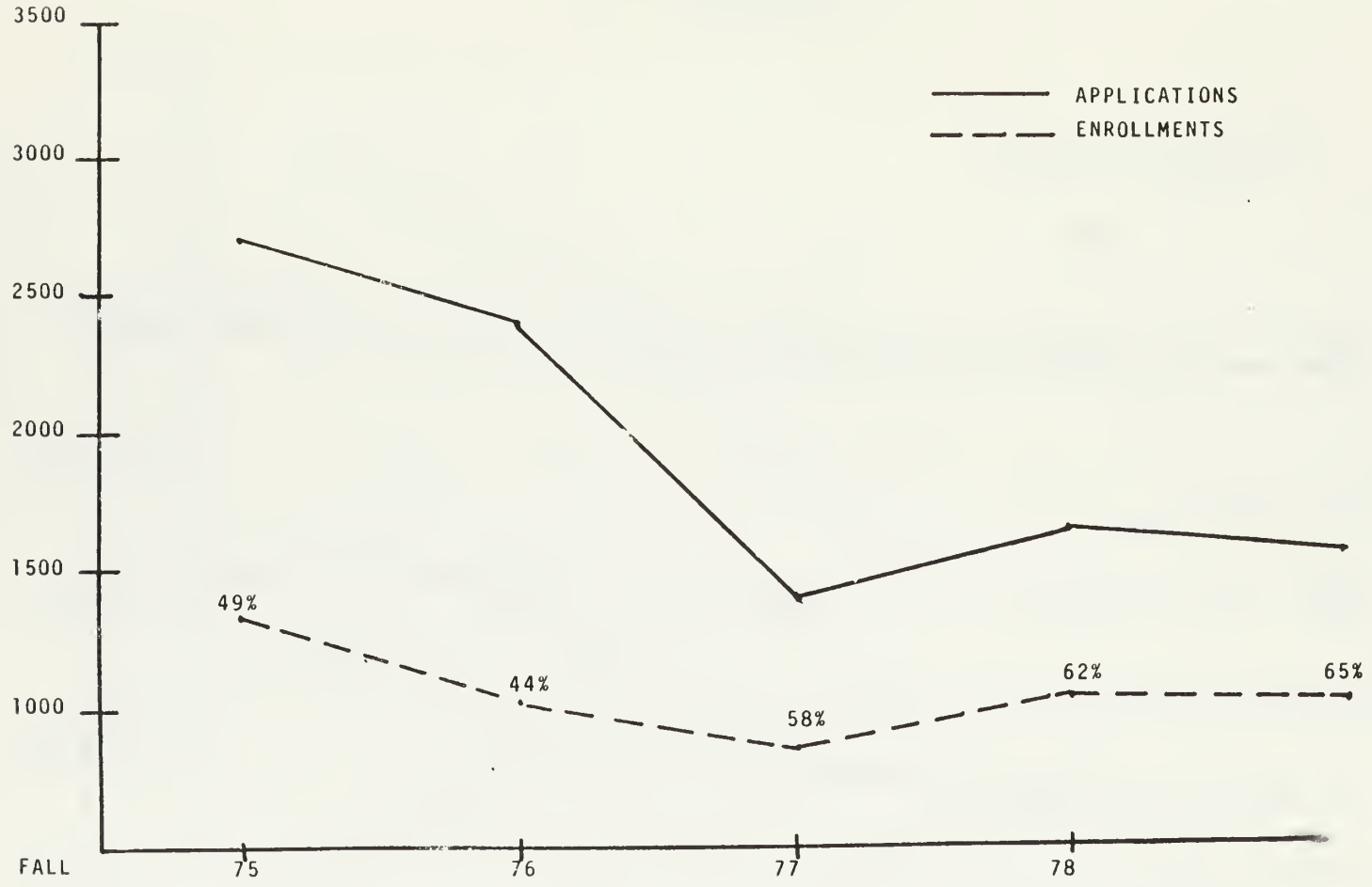
BOSTON FRESHMAN
Applicatications and Enrollments



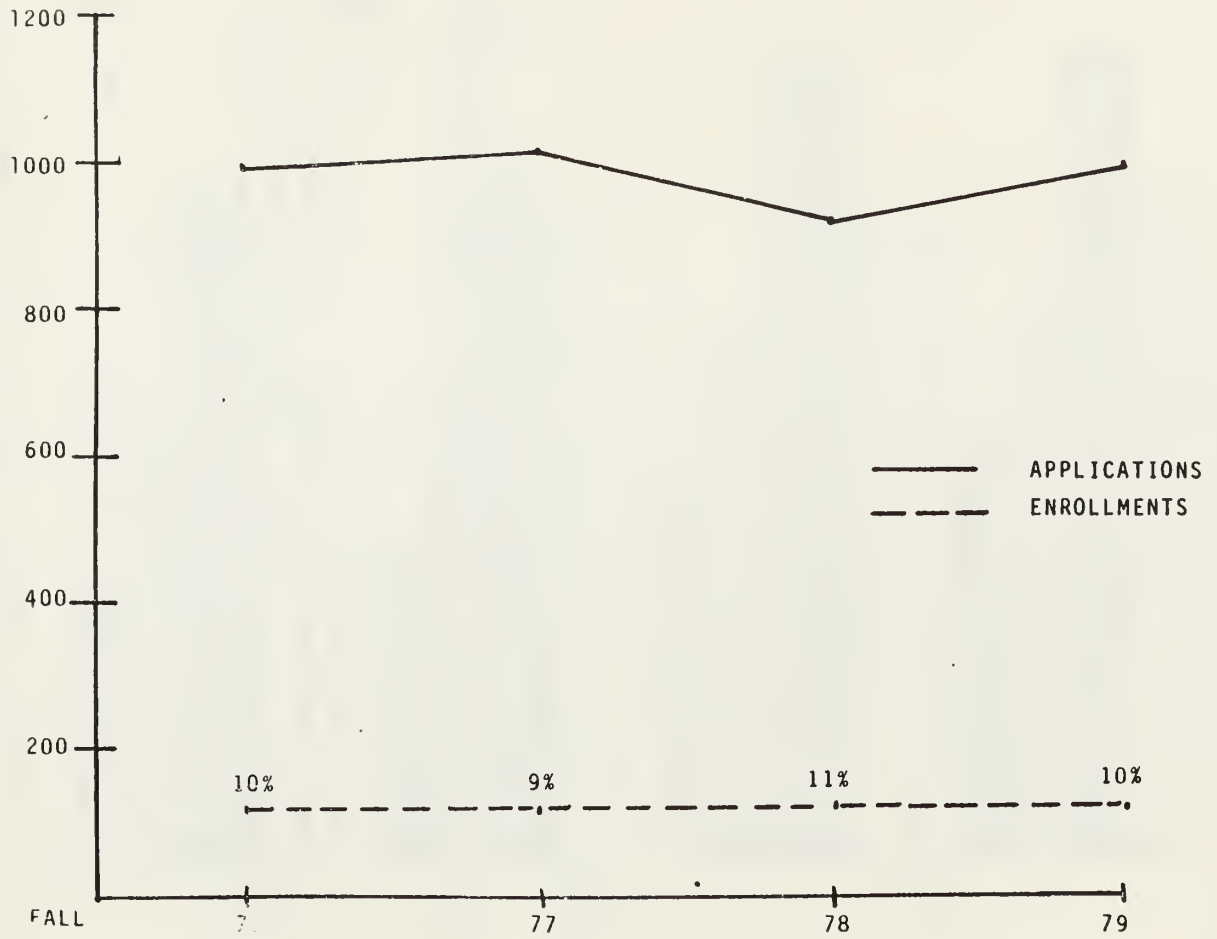
AMHERST TRANSFER STUDENTS
Applications and Enrollments



BOSTON TRANSFER STUDENTS
Applications and Enrollments



WORCESTER MEDICAL STUDENTS
Applications and Enrollments

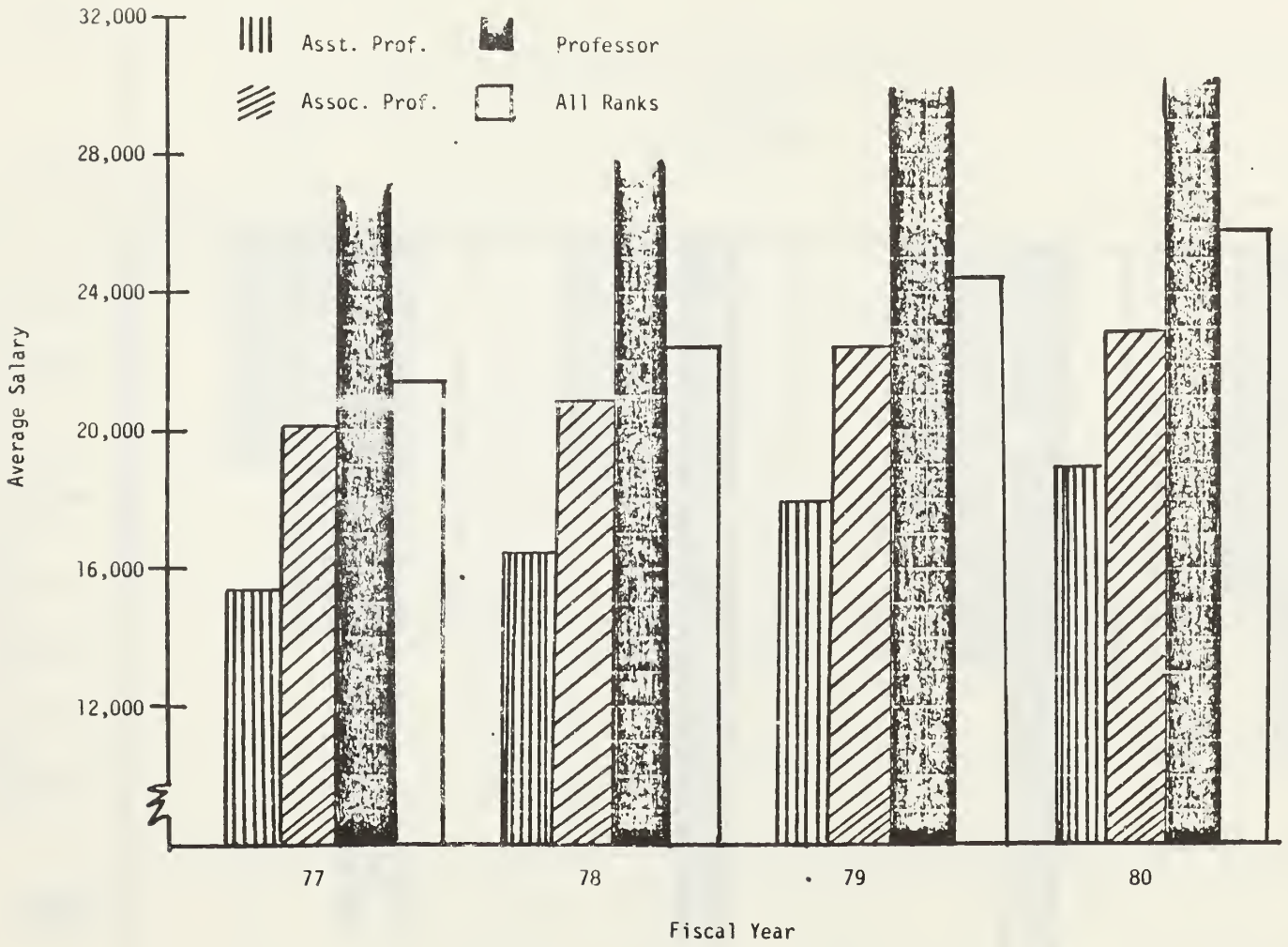


FACULTY SALARIES

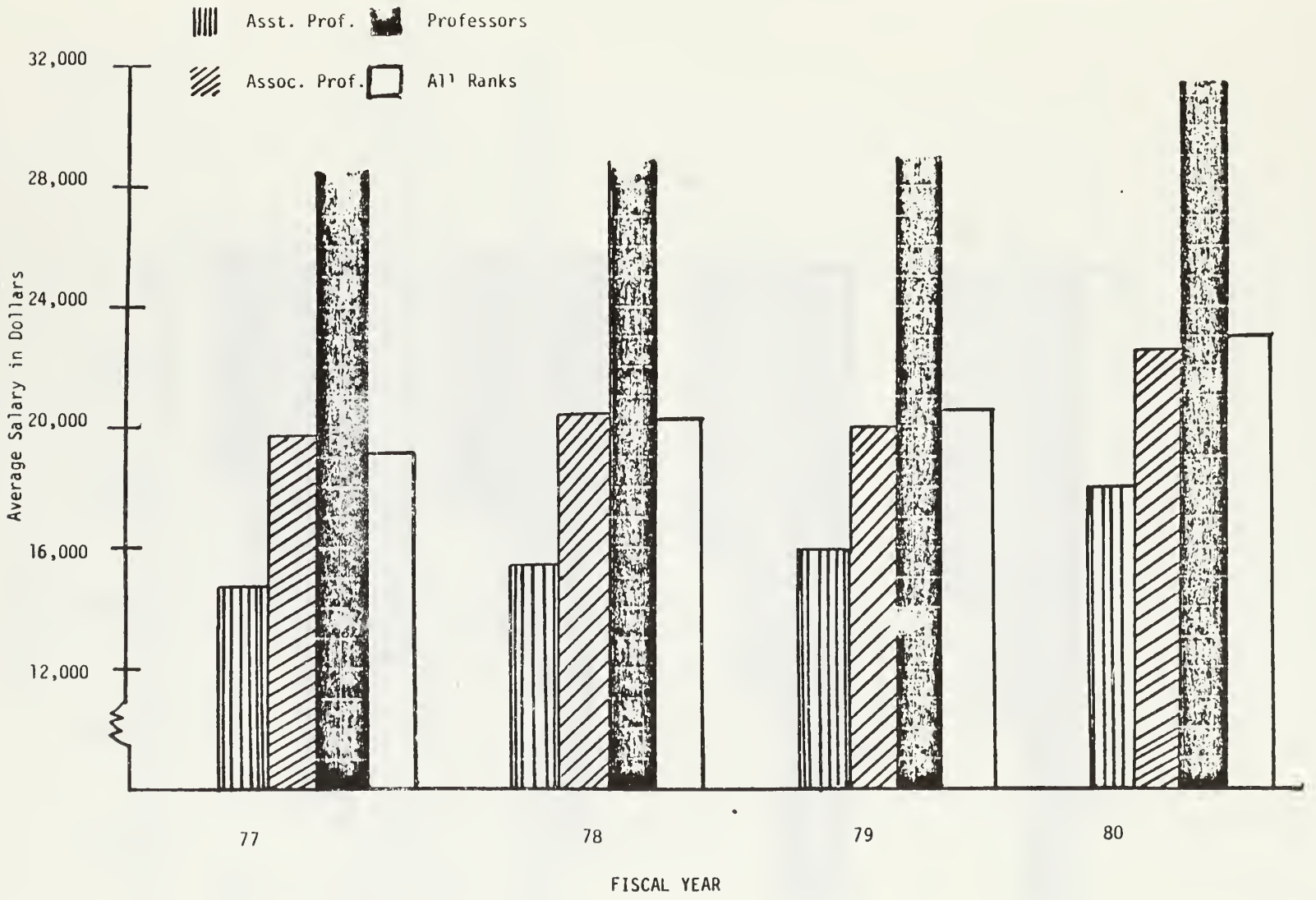
Tables FS-1 and FS-2 give a salary history for the ranks of Assistant Professor, Associate Professor, Professor and an average for all ranks from 1977 through 1980. Table FS-3 shows that the number of full-time equivalent faculty at Boston and Amherst has remained essentially stable since 1976.

The chart, because of the problems of scale, does not show the growth of the Medical School faculty, which has gone from 143 to 183 during the period.

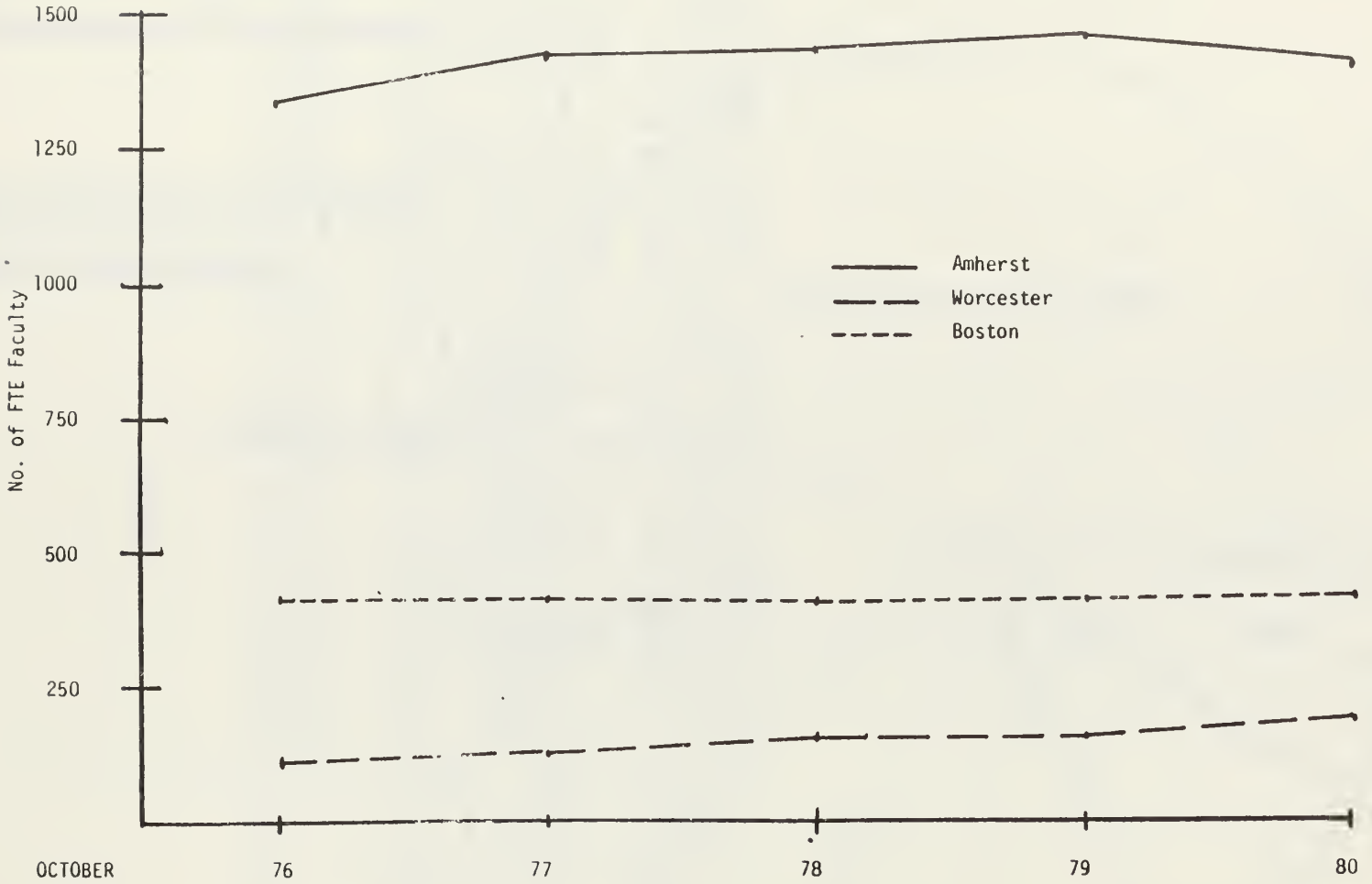
FULL-TIME FACULTY SALARY BY RANK
AMHERST



FULL-TIME FACULTY SALARY
BY RANK -BOSTON



NUMBER OF FULL-TIME EQUIVALENT FACULTY
By Campus - FY76 - 80



BUDGET

The following tables present data on the budget of the University of Massachusetts for FY80, some history of budgetary trends and tuition and an overview of the maintenance budget request for FY81.

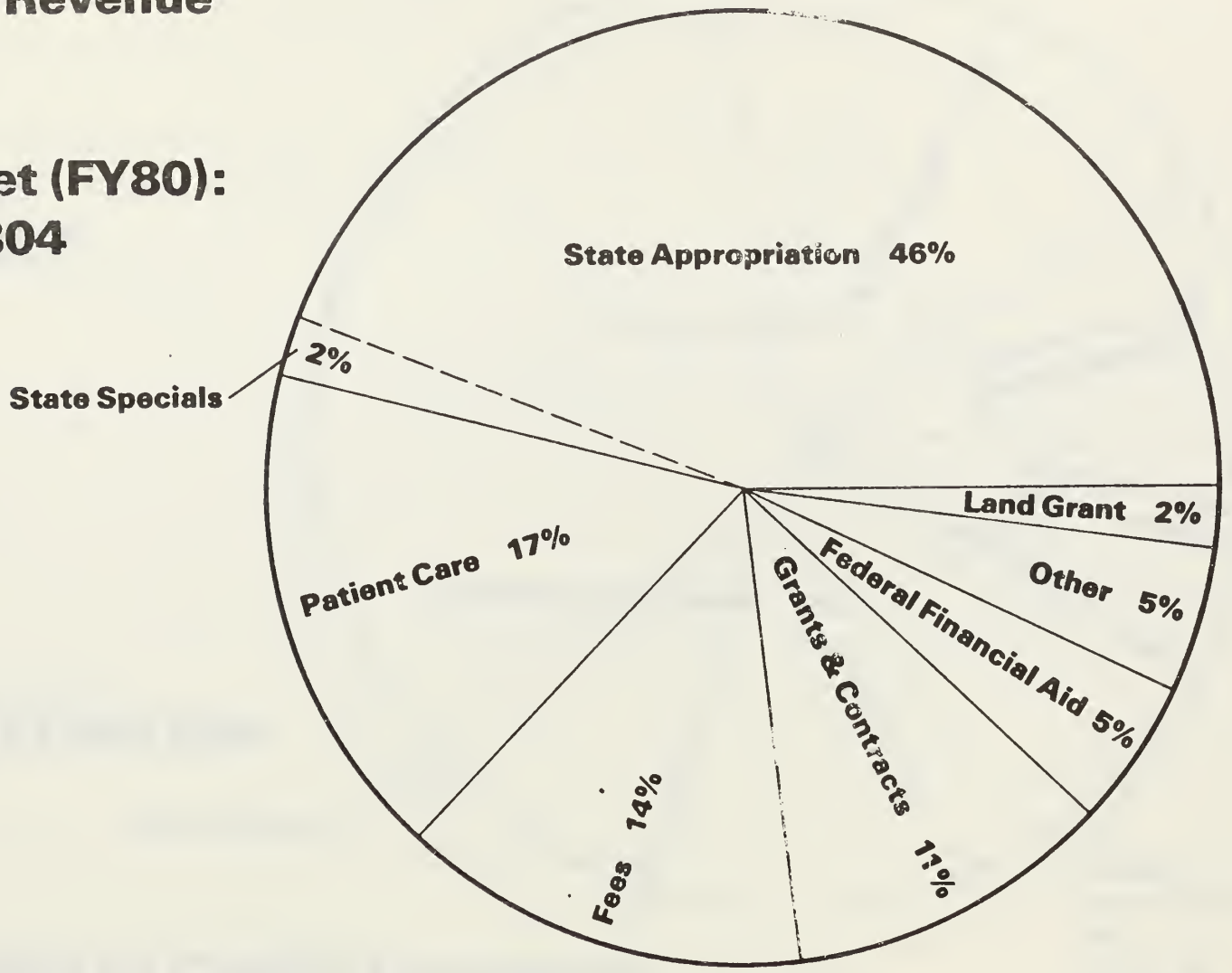
Tables B-1 and B-2 show the sources and categories of expense for the entire University budget. Tables B-3 and B-4 address the Education and General Budget of the University. In Tables B-5 through B-8, data is presented on the state appropriation: Categories of expense, appropriations by campus, the effect of inflation and the FY81 request. Table B-7, which shows the effect of inflation, addresses the University-wide appropriation. It therefore overestimates the increases at Amherst and Boston, because the growth of the Medical School appropriation is included.

Table B-9 shows the history of undergraduate tuition from 1974 to 1980. The 1981 tuition rate will increase again to $750. Tables B-10 through B-13 give historical data on the state and non-state budgets of the Amherst and Boston Campuses, the Medical School and the Hospital.

University of Massachusetts

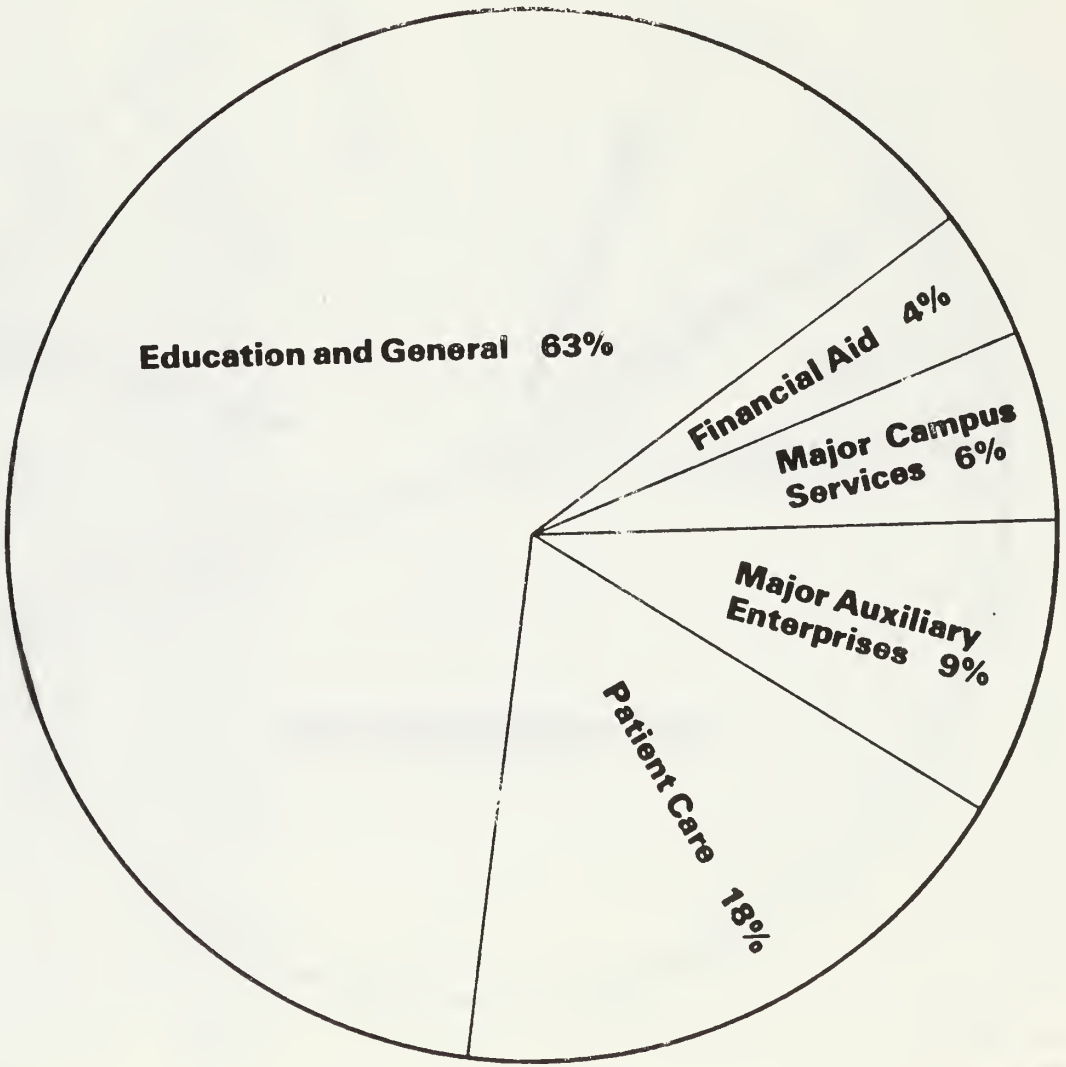
Sources of Revenue

Total Budget (FY80):
$277,966,804



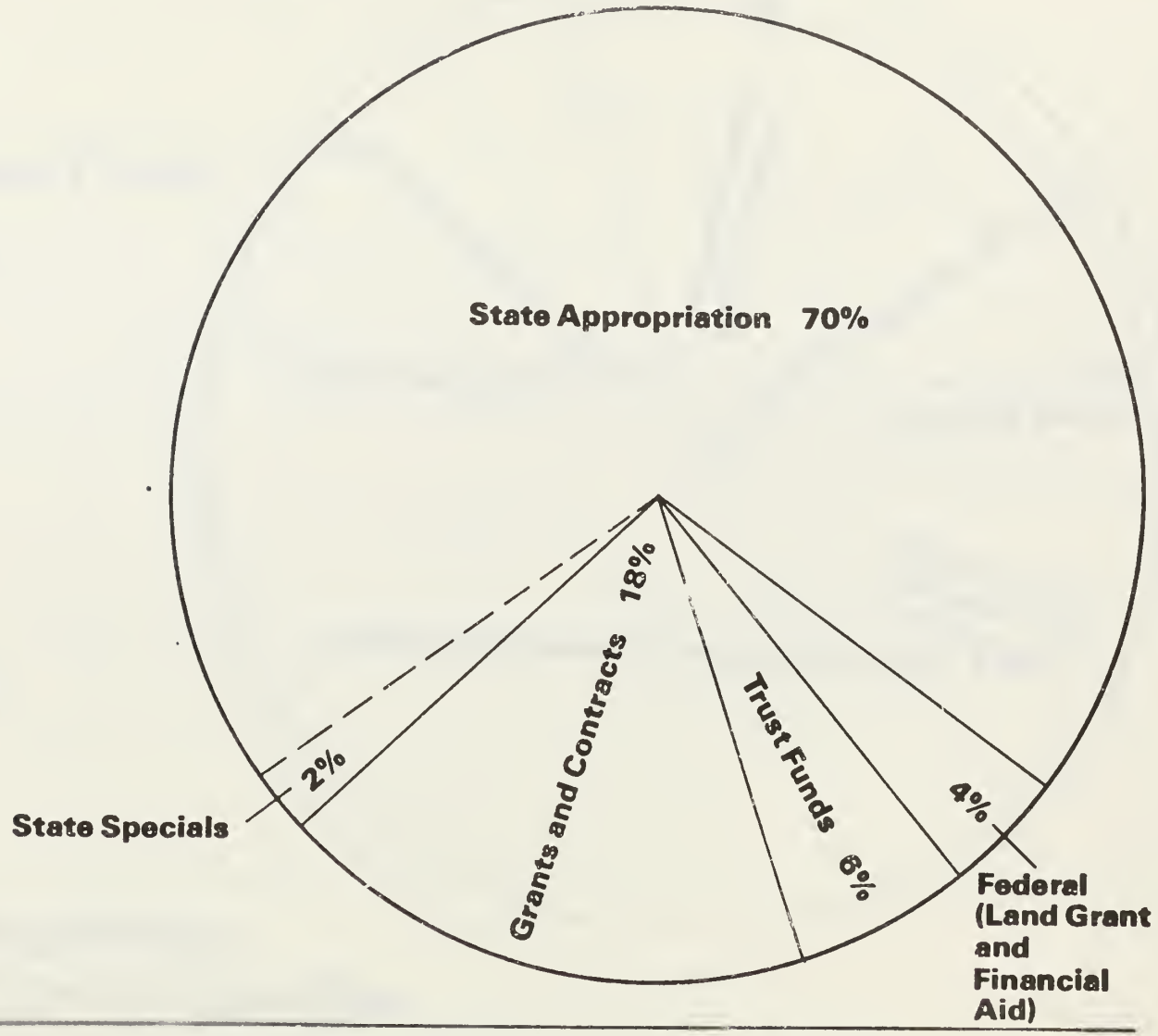
FY80 Budget by Category of Expense

Total: $277,966,804



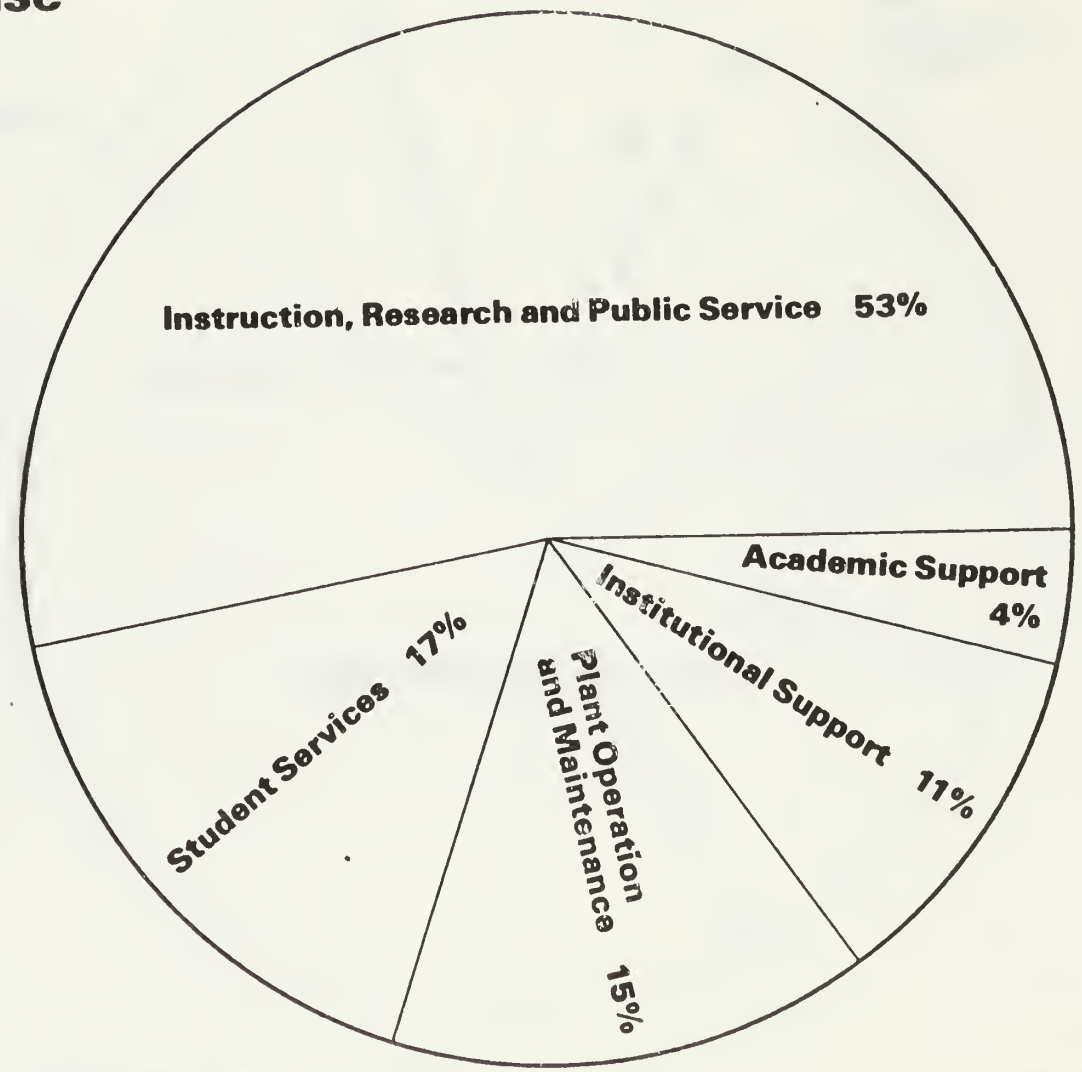
Education and General Budget by Source

FY80 Total: $171,029,657



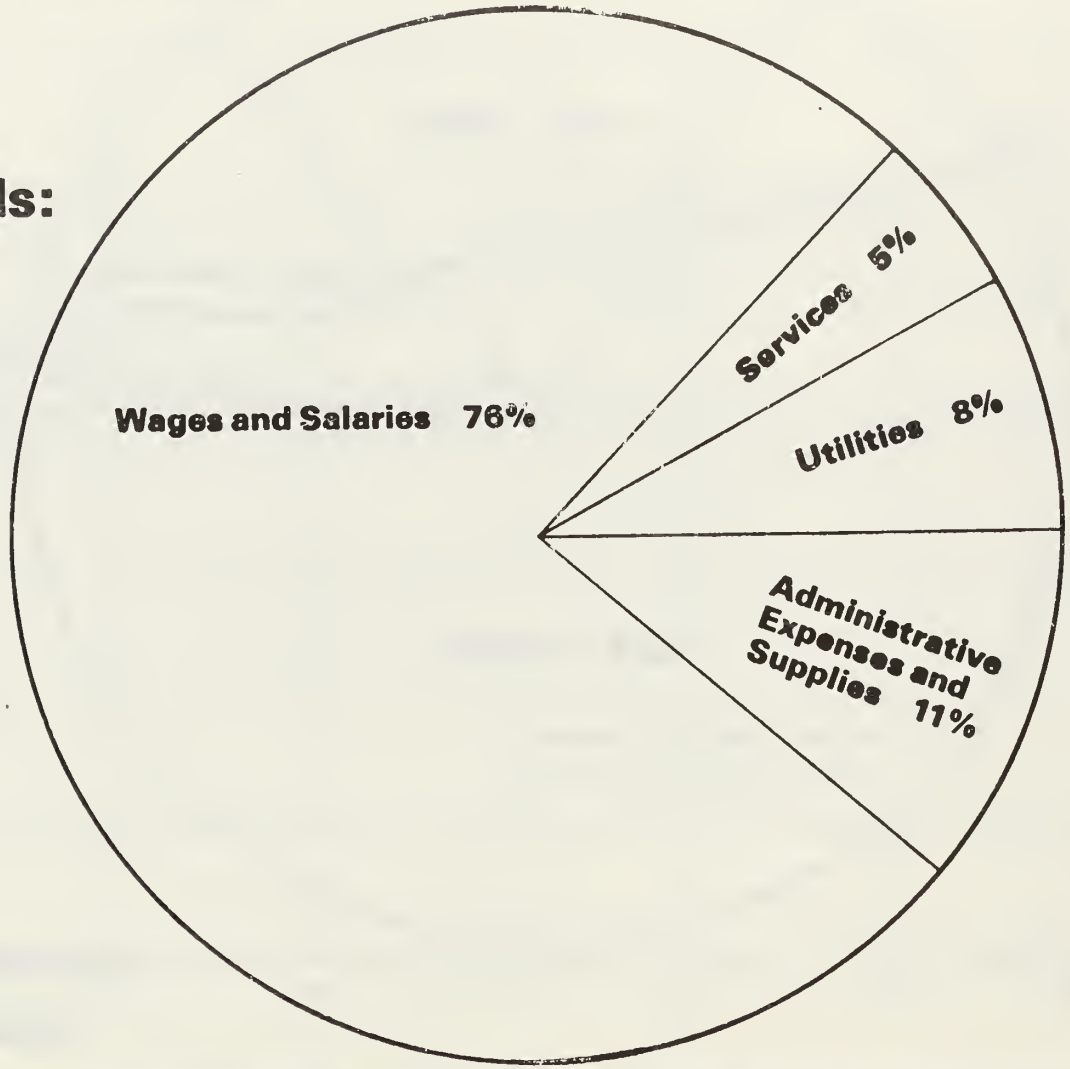
Education and General Budget by Category of Expense

FY80 Total:
$171,029,657


Instruction, Research and Public Service 53%
Academic Support 4%
Institutional Support 11%
Plant Operation and Maintenance 15%
Student Services 17%

FY80 State Funds by Expense Category

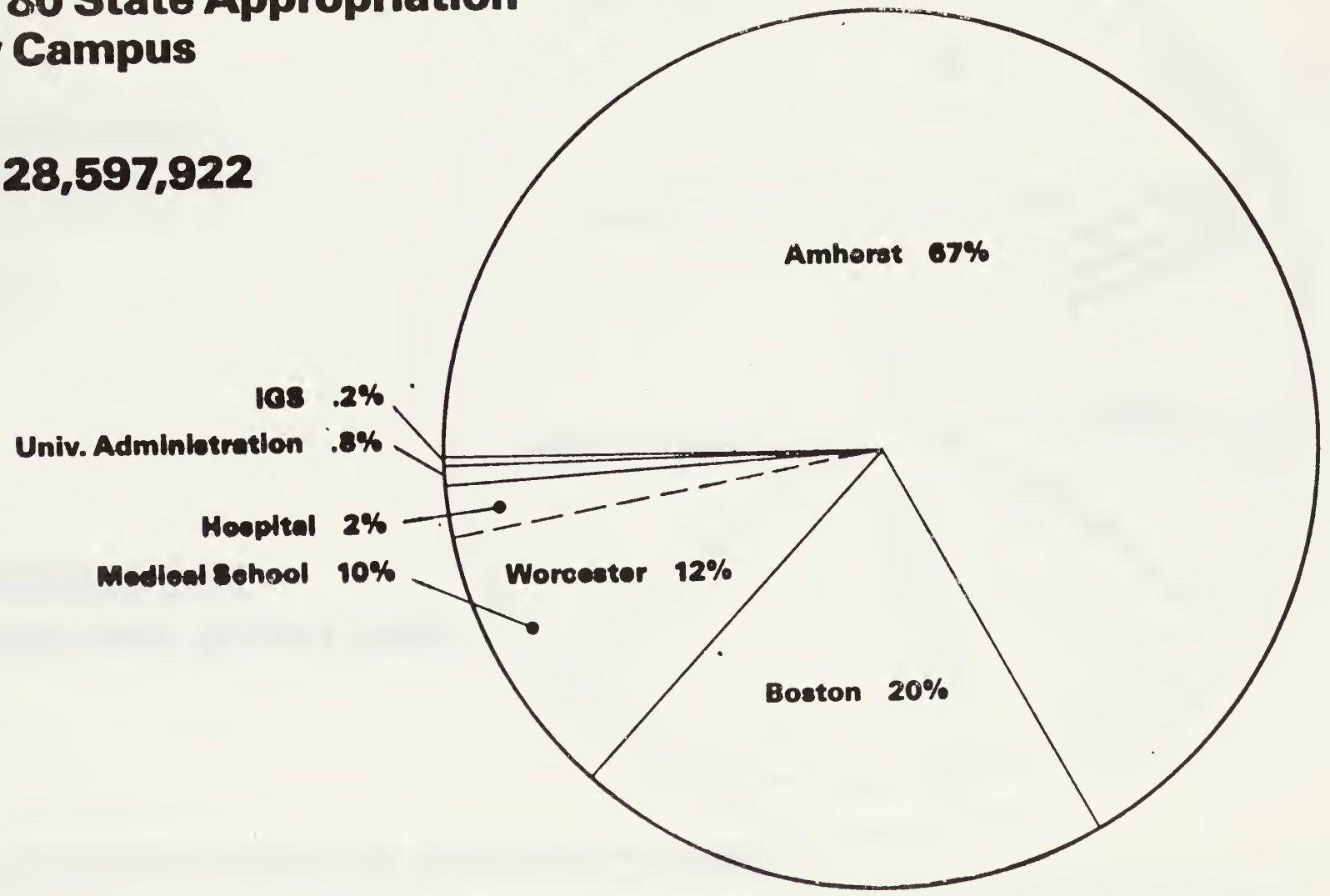
FY80 Total State Funds:
$128,597,922



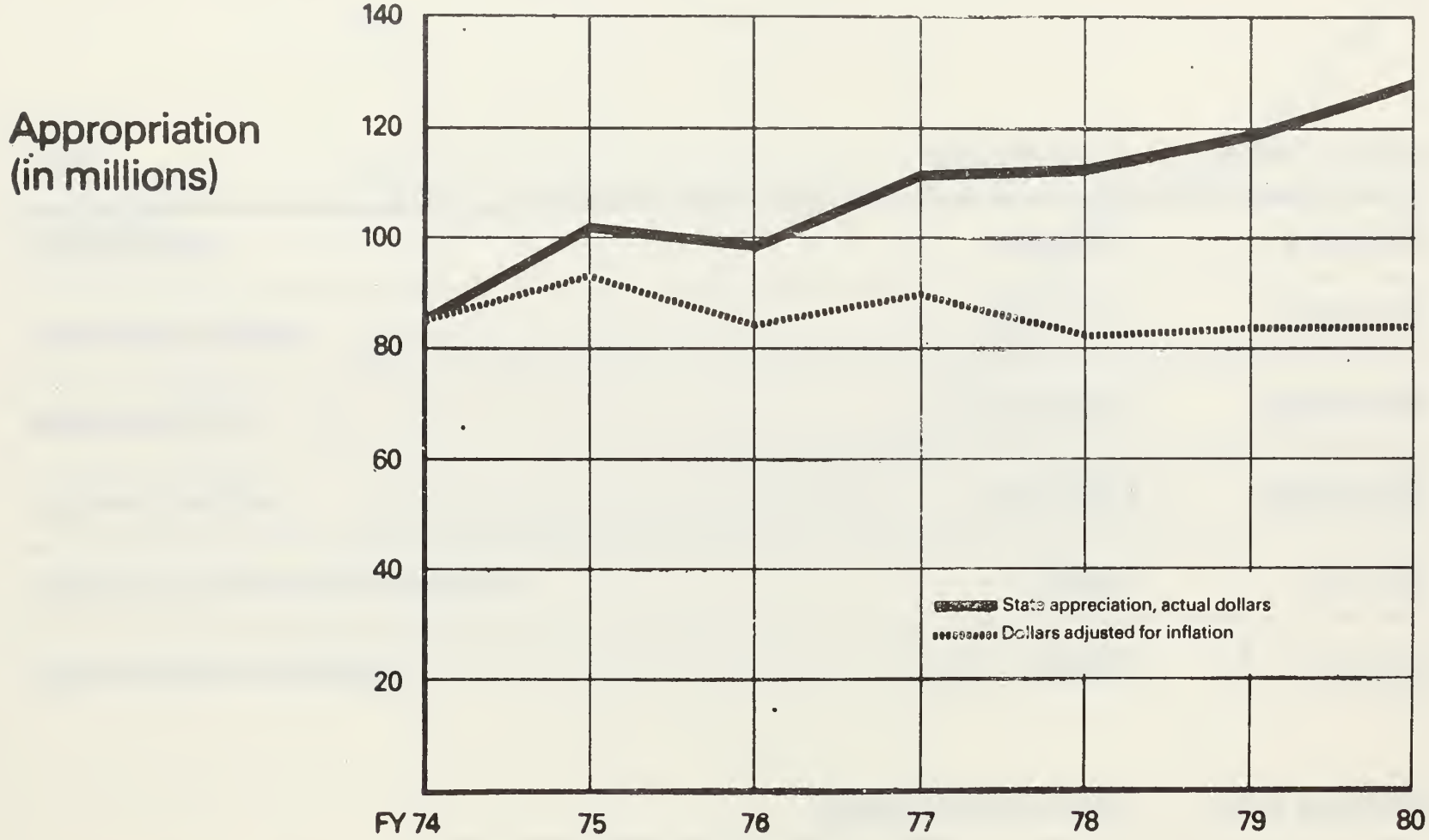
University of Massachusetts

FY80 State Appropriation by Campus

$128,597,922



Appropriations Adjusted for Inflation

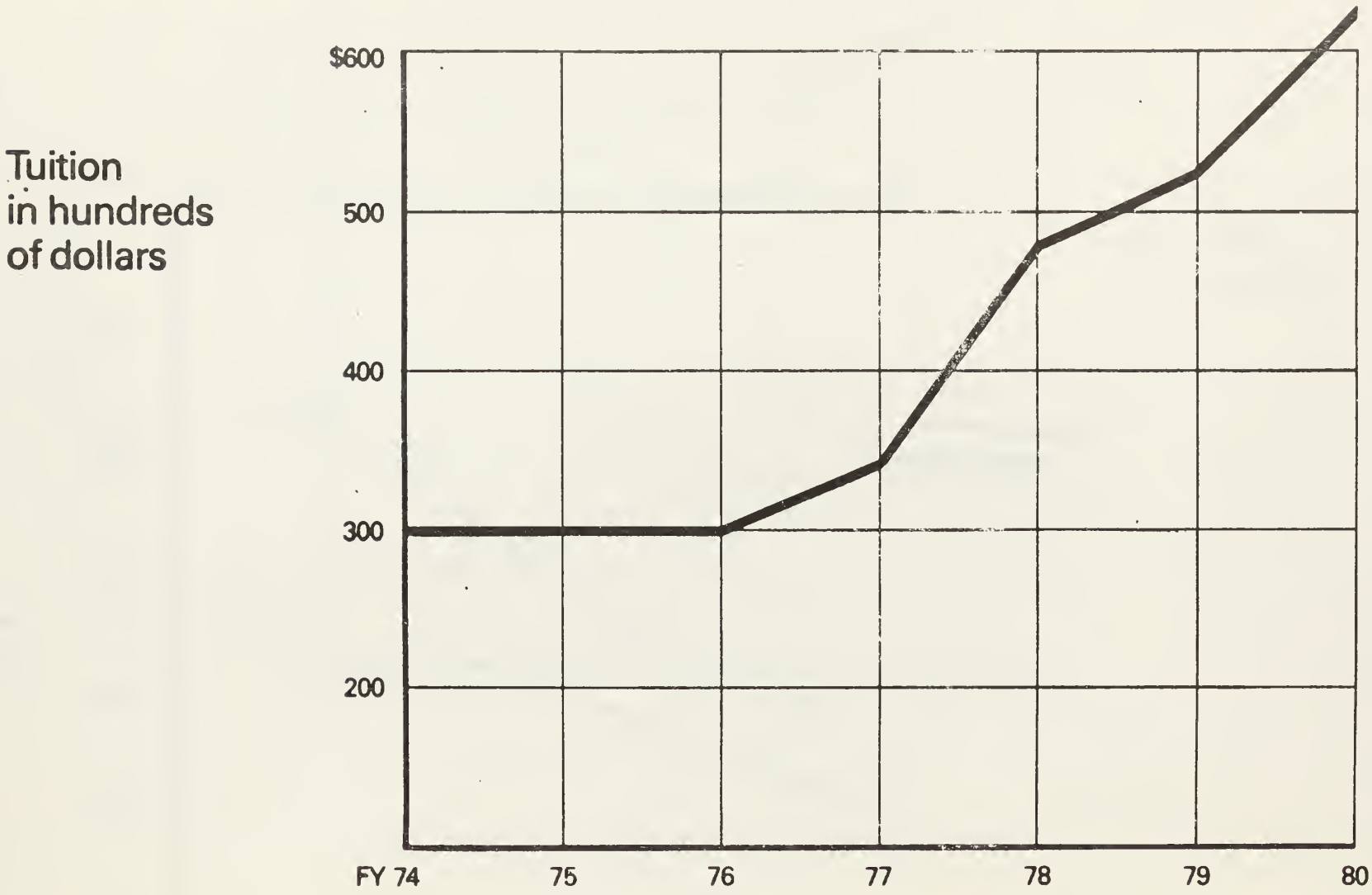


Note: Dollars adjusted for inflation using Higher Education Price Index: 1974 = 100. FY80 inflation index estimated at 8%.

University of Massachusetts

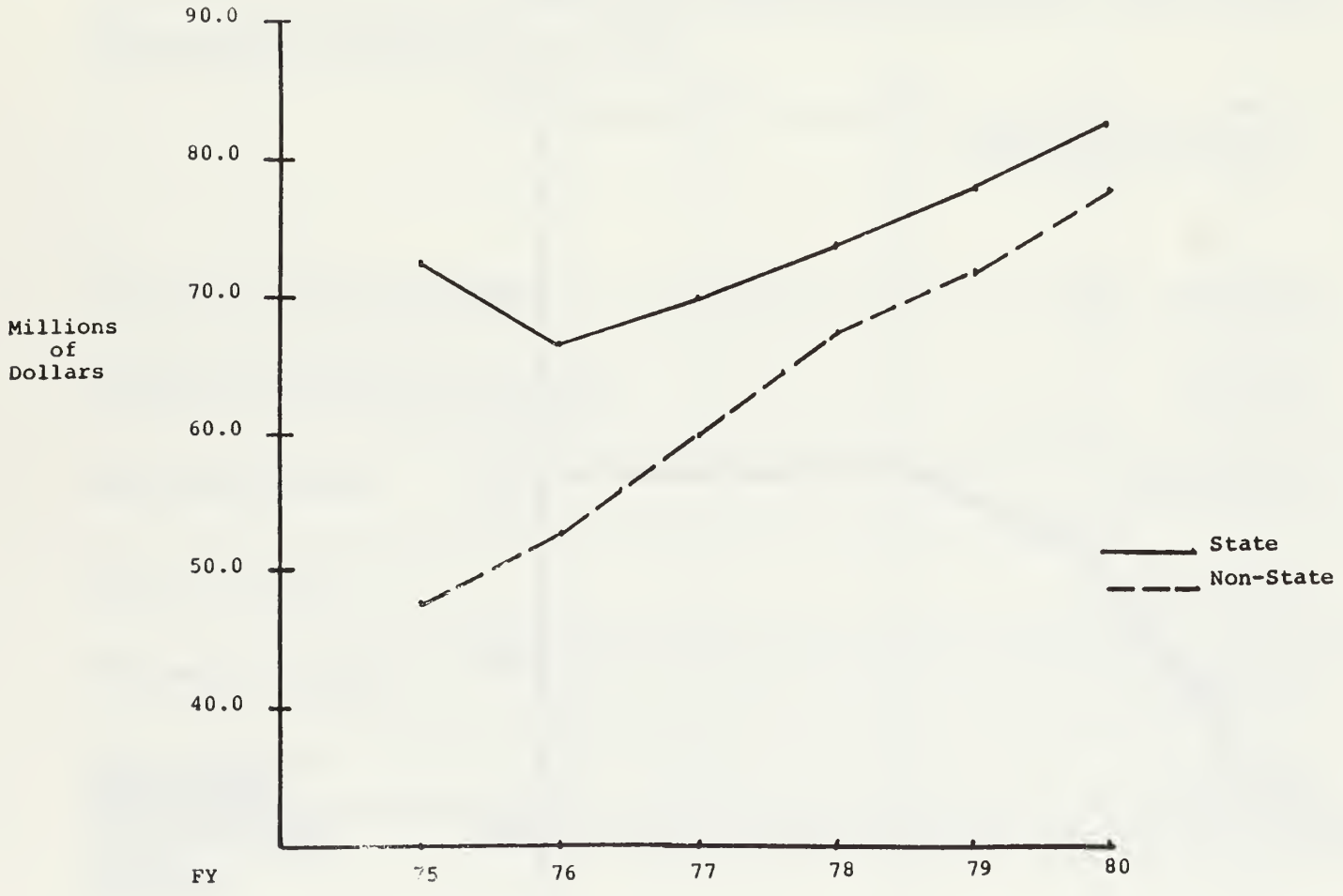
	FY80 Appropriation	FY81 Request
University Administration	$ 900,000	$ 1,277,578
Institute for Government Services	230,840	540,335
Amherst Campus	84,700,000	89,570,000
Boston Campus	24,200,000	26,649,400
Worcester Campus	15,080,032	18,667,502
State Specials	3,487,050	5,411,000
Total	$128,597,922	$142,115,815

Undergraduate Tuition

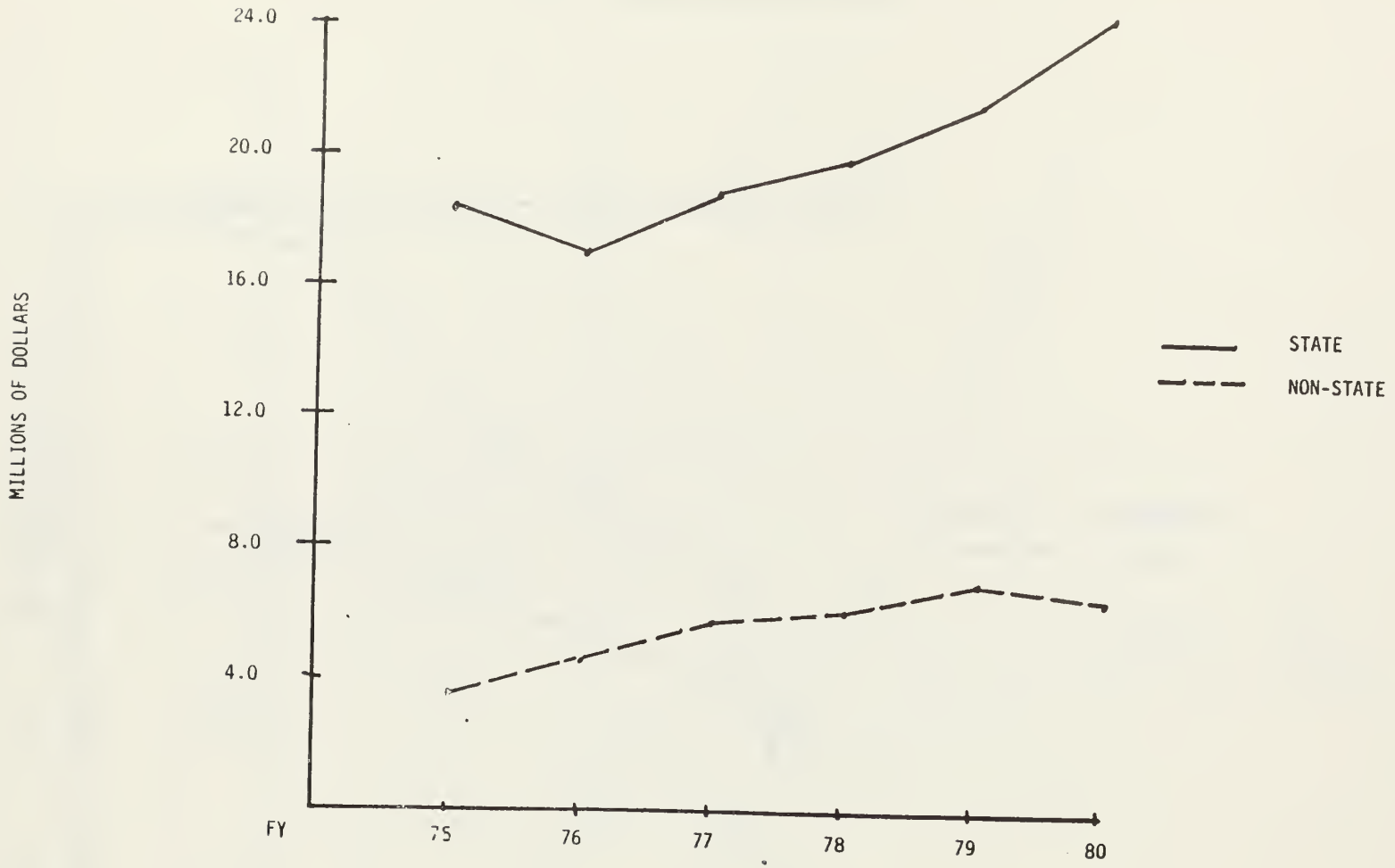


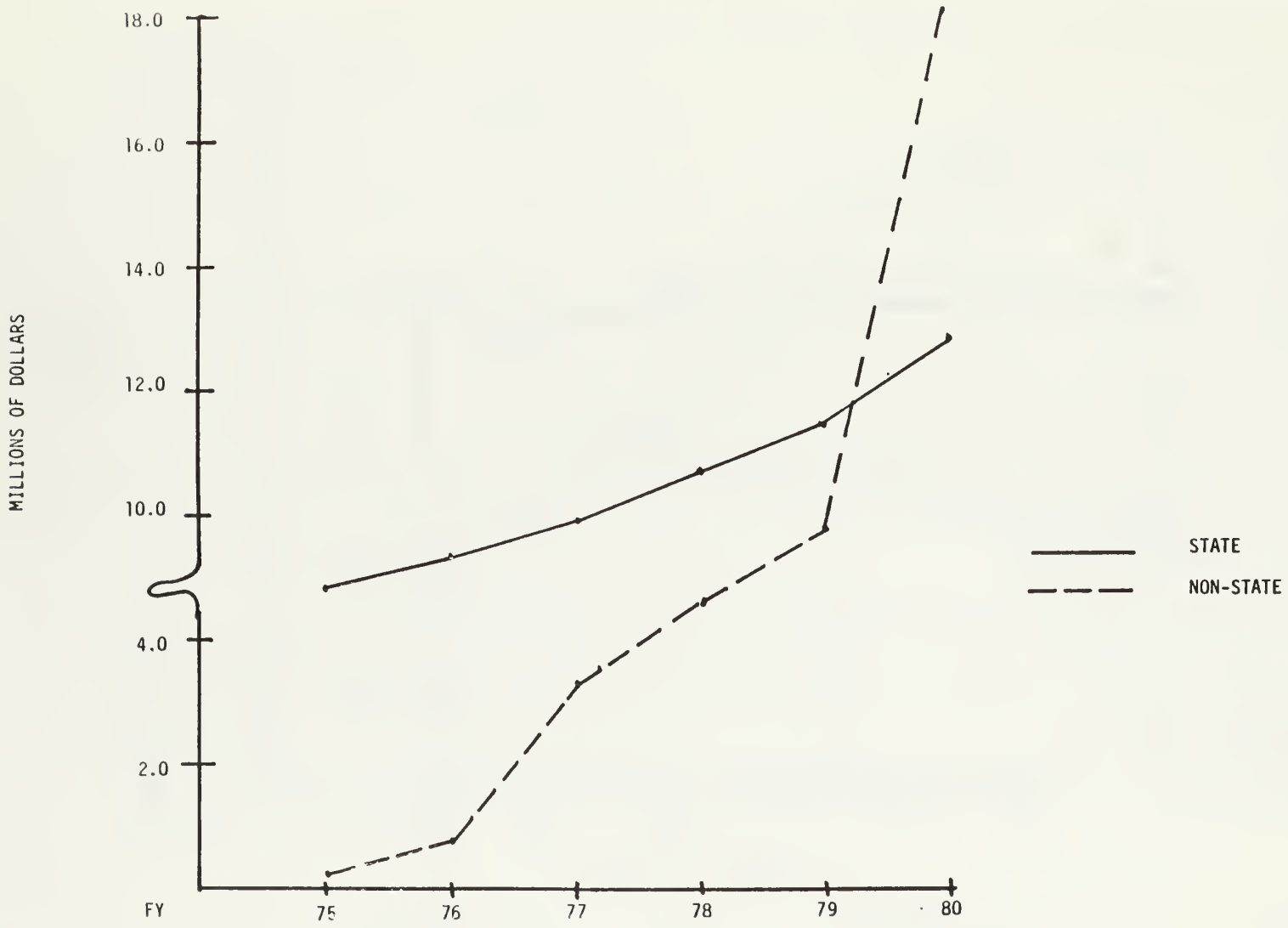
Note: Tuition rates do not include fees (which vary by campus), housing costs or Medical School and graduate costs.

AMHERST STATE AND NON-STATE BUDGET

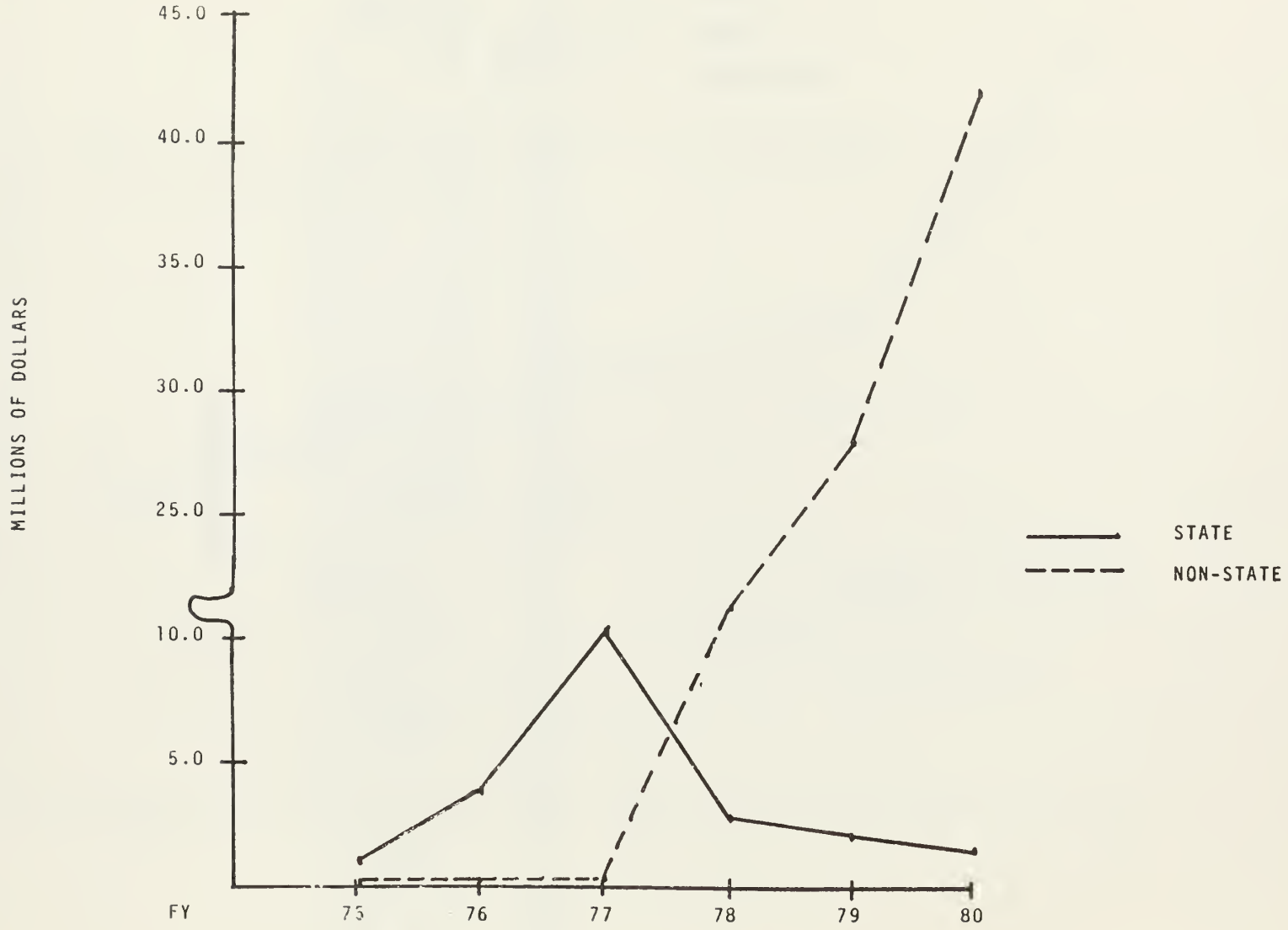


BOSTON STATE AND NON-STATE BUDGETS




MILLIONS OF DOLLARS
18.0
16.0
14.0
12.0
10.0
4.0
2.0
FY
75
76
77
78
79
80
STATE
NON-STATE

HOSPITAL STATE AND NON-STATE BUDGETS



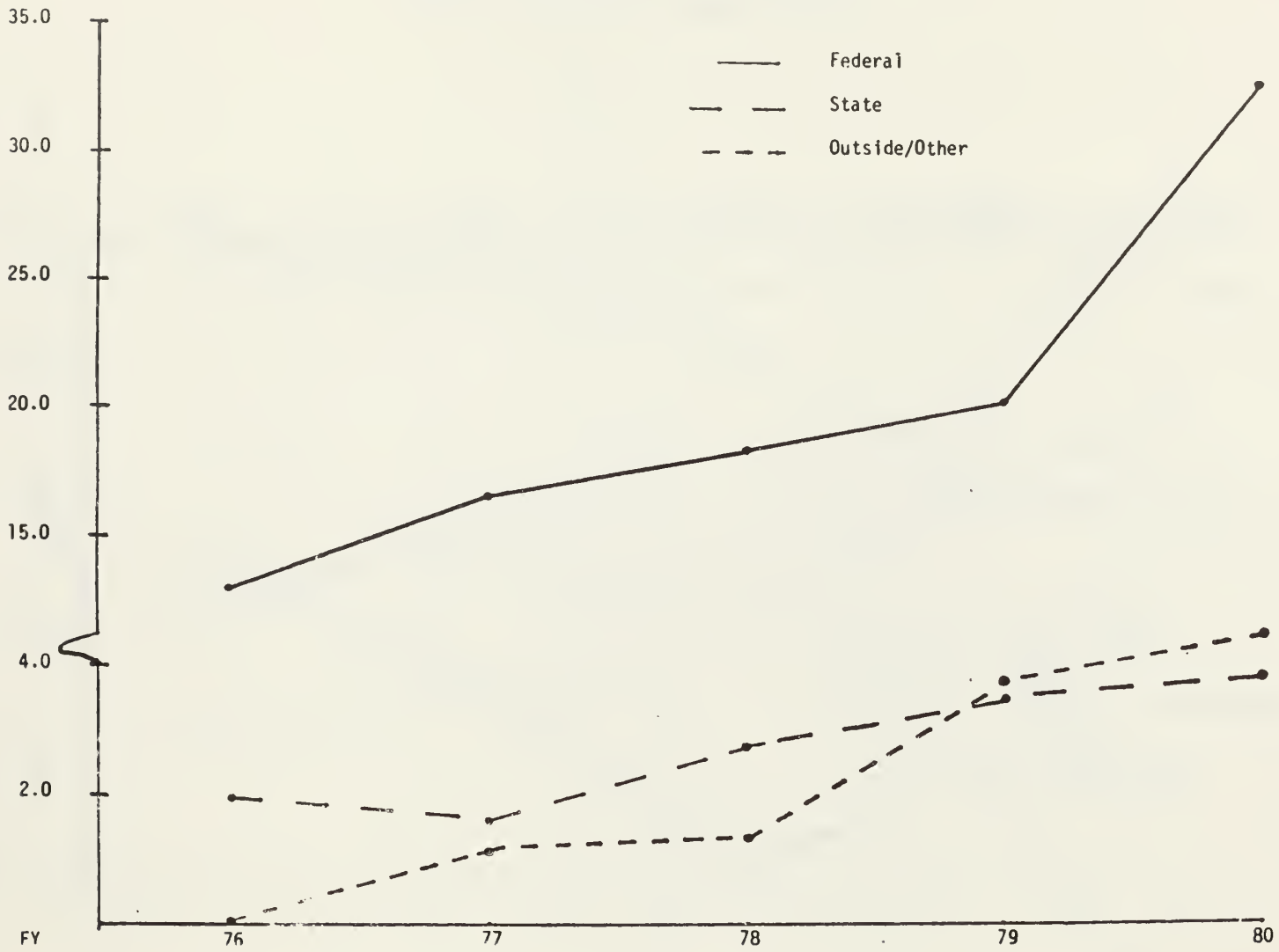
FINANCIAL AID

The tables numbered FA-1 through FA-4 depict some features of the total financial aid picture at the University of Massachusetts from 1976 through 1980. Tables FA-1 and FA-2 clearly indicate our students' reliance on federal sources of financial aid, although a small increase in other sources of aid is indicated. The "other" category on these tables relates to private sources, including employment-related aid.

Tables FA-3 and FA-4 show the mix of types of aid used by our students. A typical financial aid package for a given student will include a combination of loans, grants and student-earned income.

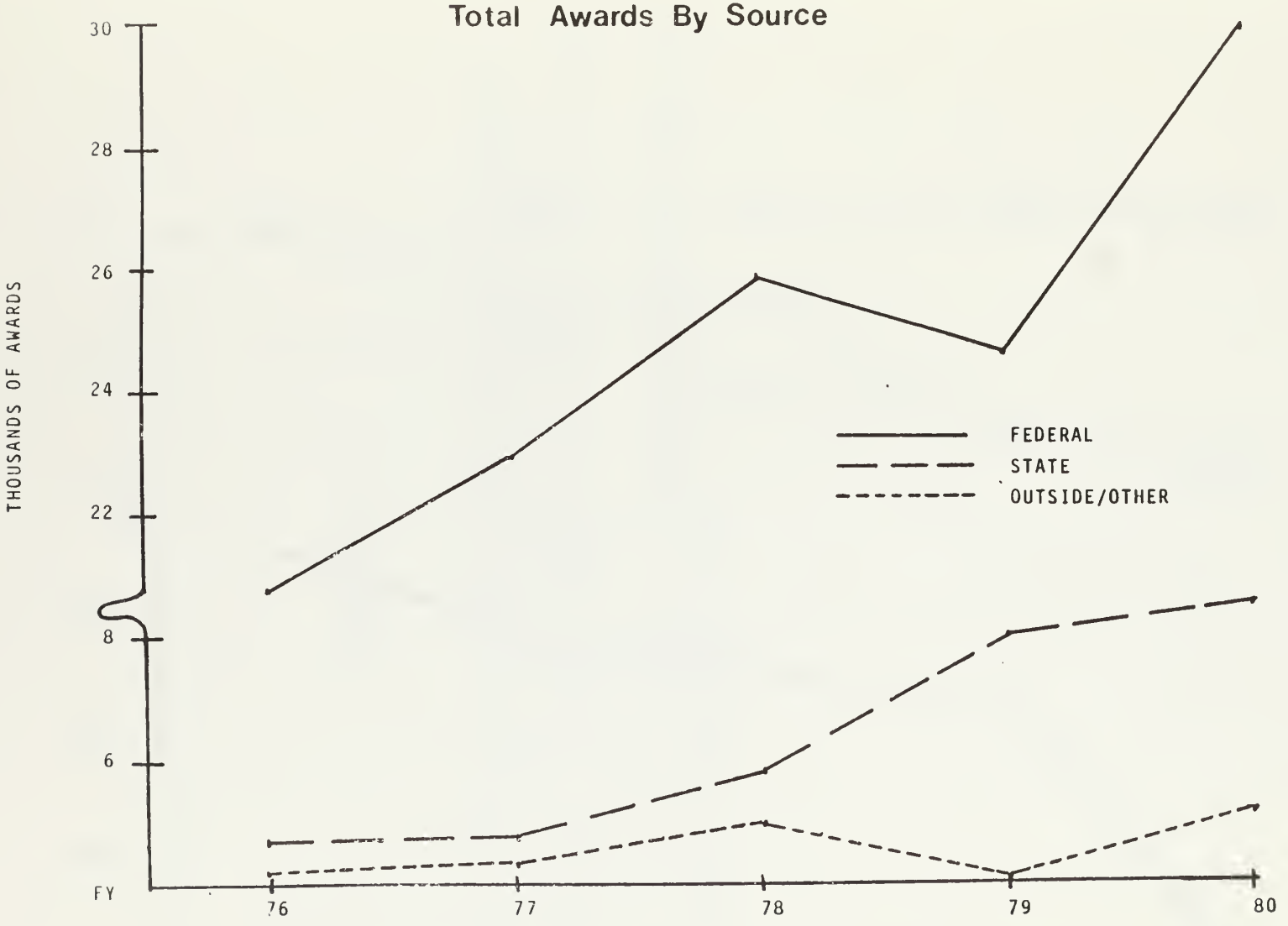
FINANCIAL AID

Total Dollars By Source



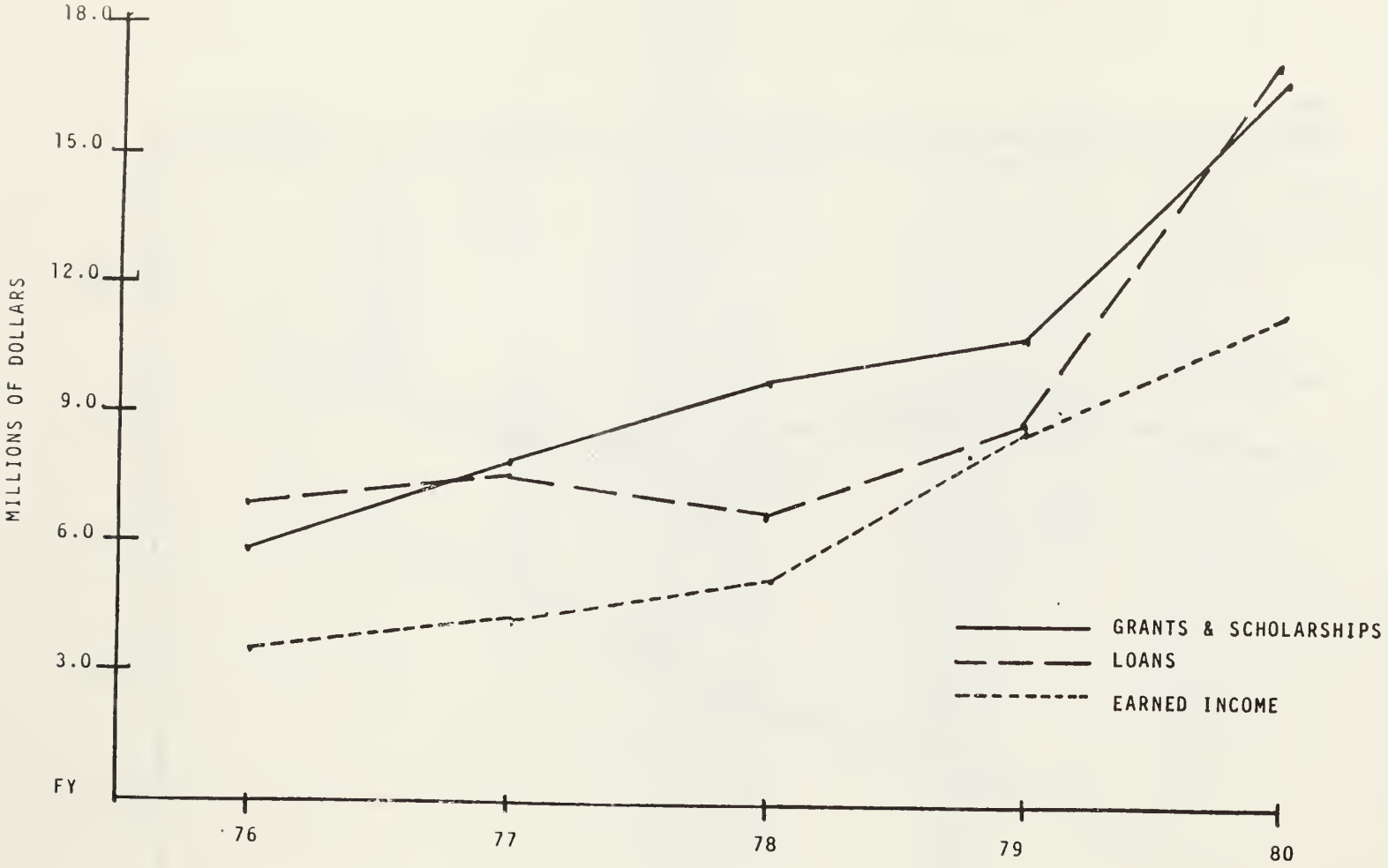
FINANCIAL AID

Total Awards By Source



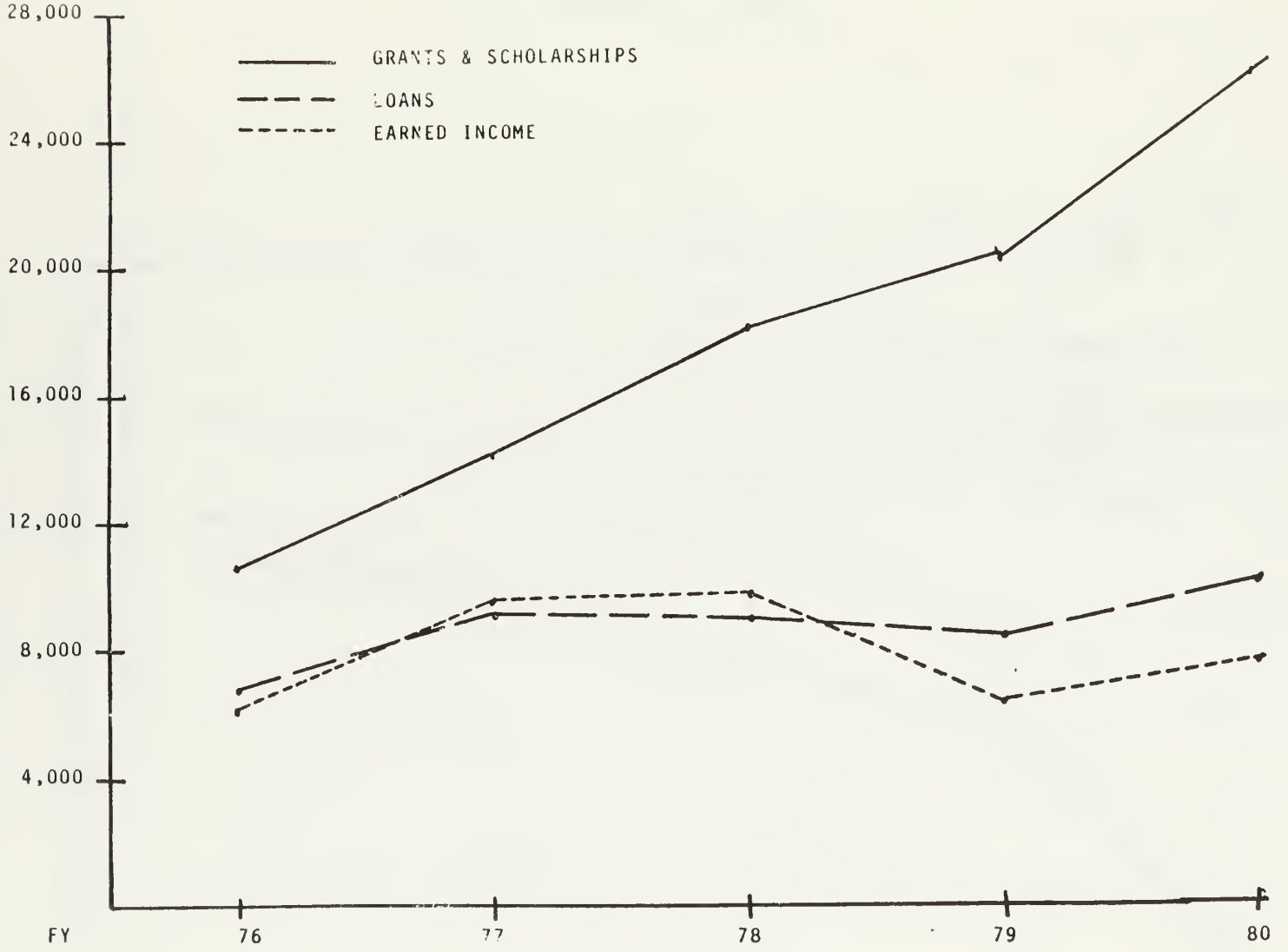
FINANCIAL AID

Total Dollars By Type of Aid



FINANCIAL AID

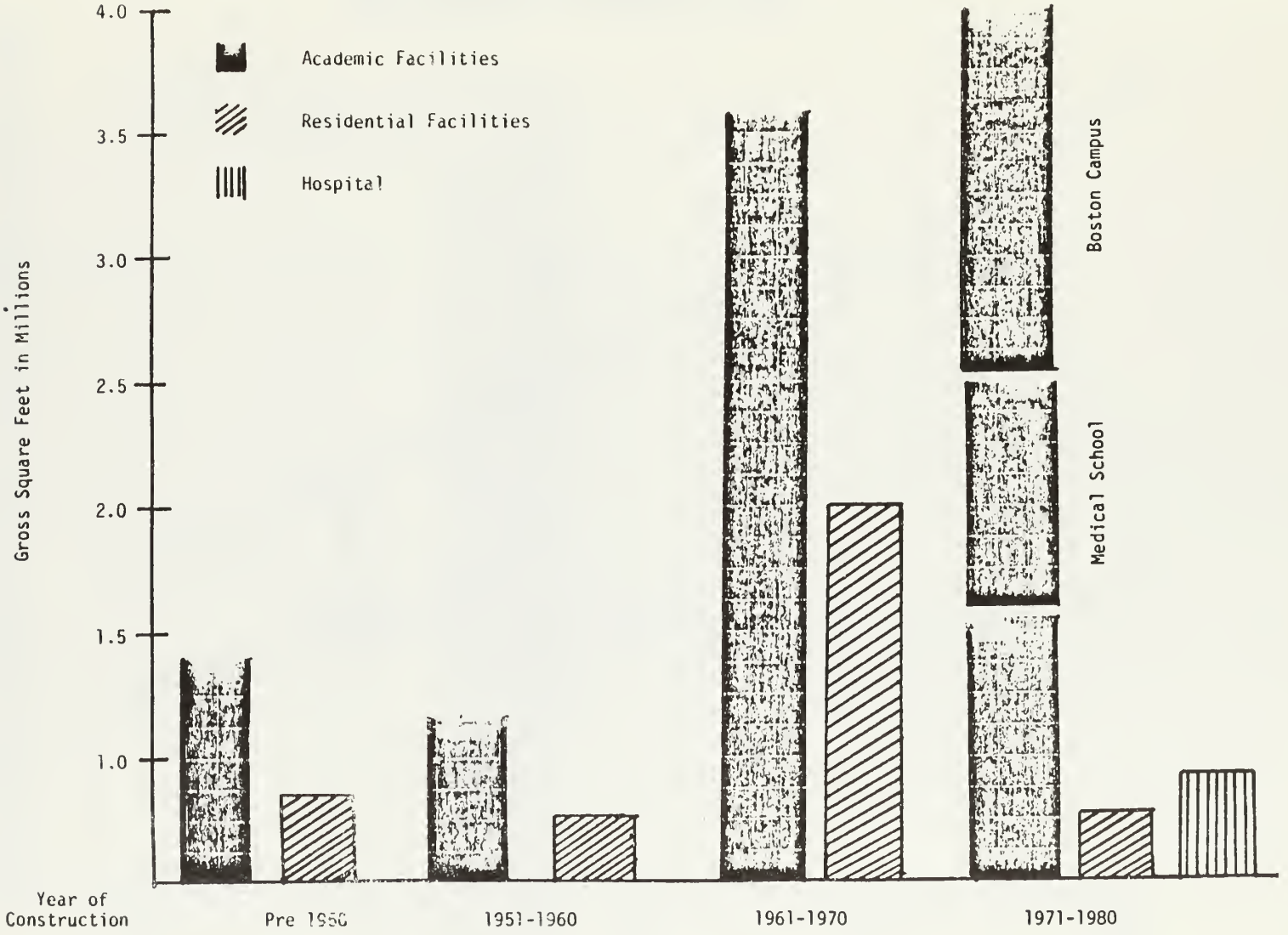
Total Awards By Type of Aid



PHYSICAL PLANT

This chart shows the number of gross square feet of facilities operated by the University, categorized by type of facility (academic, residential, and hospital) and year of construction. The construction of the Boston and Worcester Campuses during the 1970's contributes to the greatest growth period of academic facilities for the University.

SQUARE FOOTAGE OF PHYSICAL PLANT
By Type and Year of Construction



UNIVERSITY OF MASSACHUSETTS MEDICAL CENTER

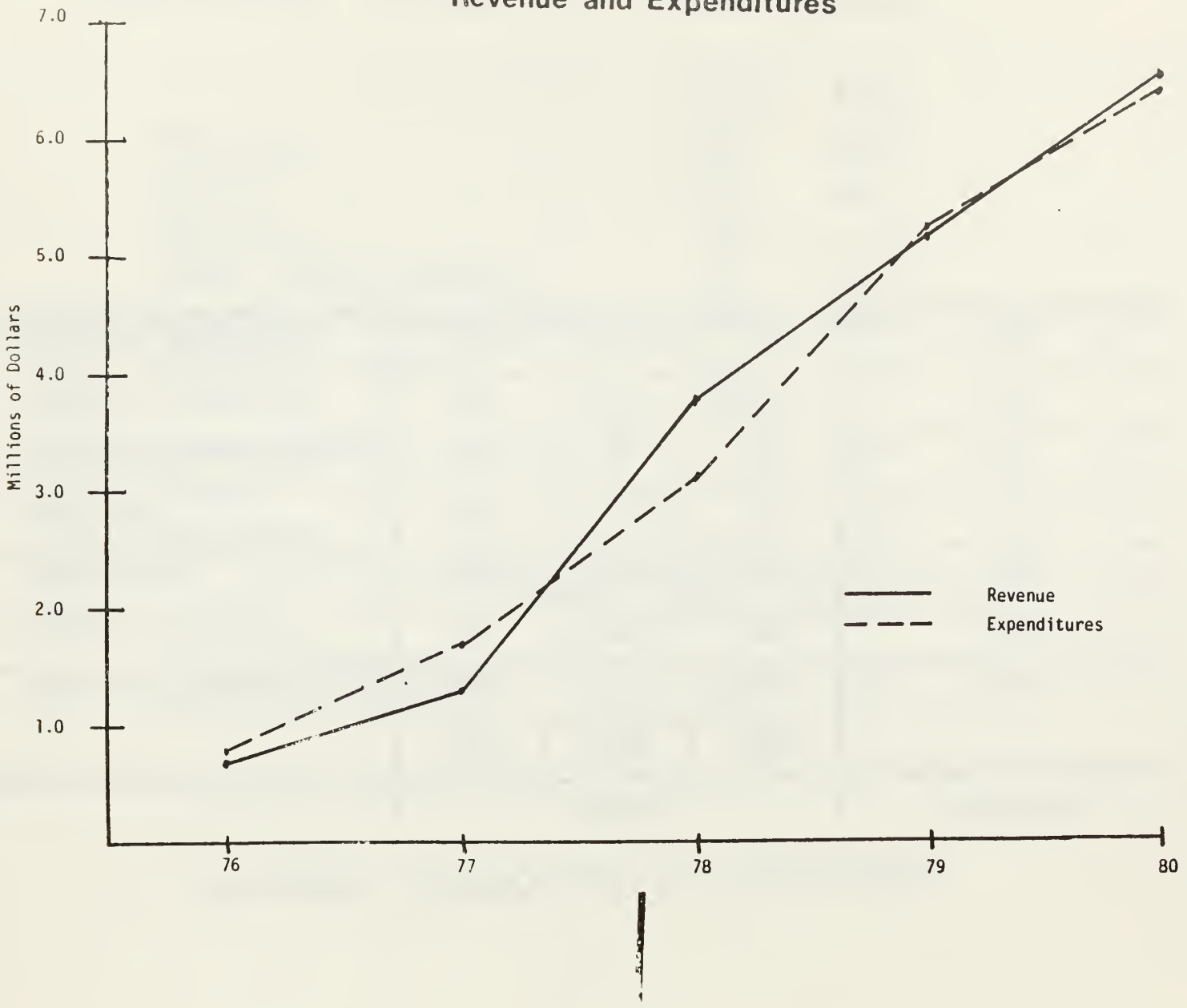
Some features of the programs of the University Medical Center at Worcester bear presenting separately. Table W-1 gives some historical statistical data on the operations of the Hospital since 1977. Table W-2 depicts the growth in the Group Practice Plan since 1976. In Tables W-3 through W-6, data is presented to assist the reader in viewing the Medical Center within the network of the health care system in Massachusetts. The information on activities of the graduates (in primary care areas), the level of participation in continuing education activities and the relationship with area hospitals show that the UMass. Medical Center has, in a relatively brief time period, become an important part of this network.

Hospital Statistics

FY77 - 80

	77	78	79	80
Beds Available	85	173	215	273
No. of Inpatient Days	25,594	35,746	51,660	71,742
No. of Clinic & Emergency Days	34,718	57,177	82,296	101,920
Total Budget (in millions)	$10.3	$17.7	$29.1	$37.5
State Subsidy (in millions)	$4.5	$3.5	$3.0	$2.5

GROUP PRACTICE PLAN
Revenue and Expenditures



Program Distribution of Graduates

	UMMS			NATIONAL
	1977	1978	1979	
Internal Medicine	61%	53%	64%	36%
Family Practice	5%	8%	6%	13%
Pediatrics	15%	8%	7%	10%
OB/GYN	7%	3%	3%	6%
Medical Specialties	10%	1%	2%	4%
Surgery	5%	17%	13%	16%
Support Services	10%	9%	4%	6%

Continuing Education Participation

	FY78	FY79
Physicians	451	682
Nurses	375	947
D.M.D.'s	25	55
Public School Coaches	37	117
Emergency Medical Techs.	40	622
Respiratory Techs.	10	10
Podiatrists	90	----
Social Workers	----	139
Clergy	----	10
Morticians	----	10
TOTAL:	1,028	2,592
TOTAL PROGRAMS	24	27

PATIENT VISITS TO UMMC FAMILY HEALTH CENTERS AND CLINICS

	FY 78	FY 79	FY 80
Barre Family Health Center	12,078	13,498	15,000
Fitchburg Family Practice	23,886	25,231	25,000
Family Health & Social Service Center (Worcester)	10,894	11,356	11,500
Hahnemann Family Health Center (Worcester)	7,936	11,942	12,500
Tri-River Family Health Center (Uxbridge)		2,498	7,000
UMMC Ambulatory Care Clinics	38,760	59,365	70,000
UMMC Emergency Room			32,000
Total			173,000

Residents Based at Major Teaching Affilliates

St. Vincent Hospital	51
Worcester City Hospital	37
Memorial Hospital	38
Berkshire Medical Center	54
	180

UMass Coordinated Program (SVH, City, Memorial, Hahnemann. Berkshire, UMass)	245
TOTAL	425

AMHERST CAMPUS
RESIDENCE HALLS AND GEOGRAPHIC DISTRIBUTION

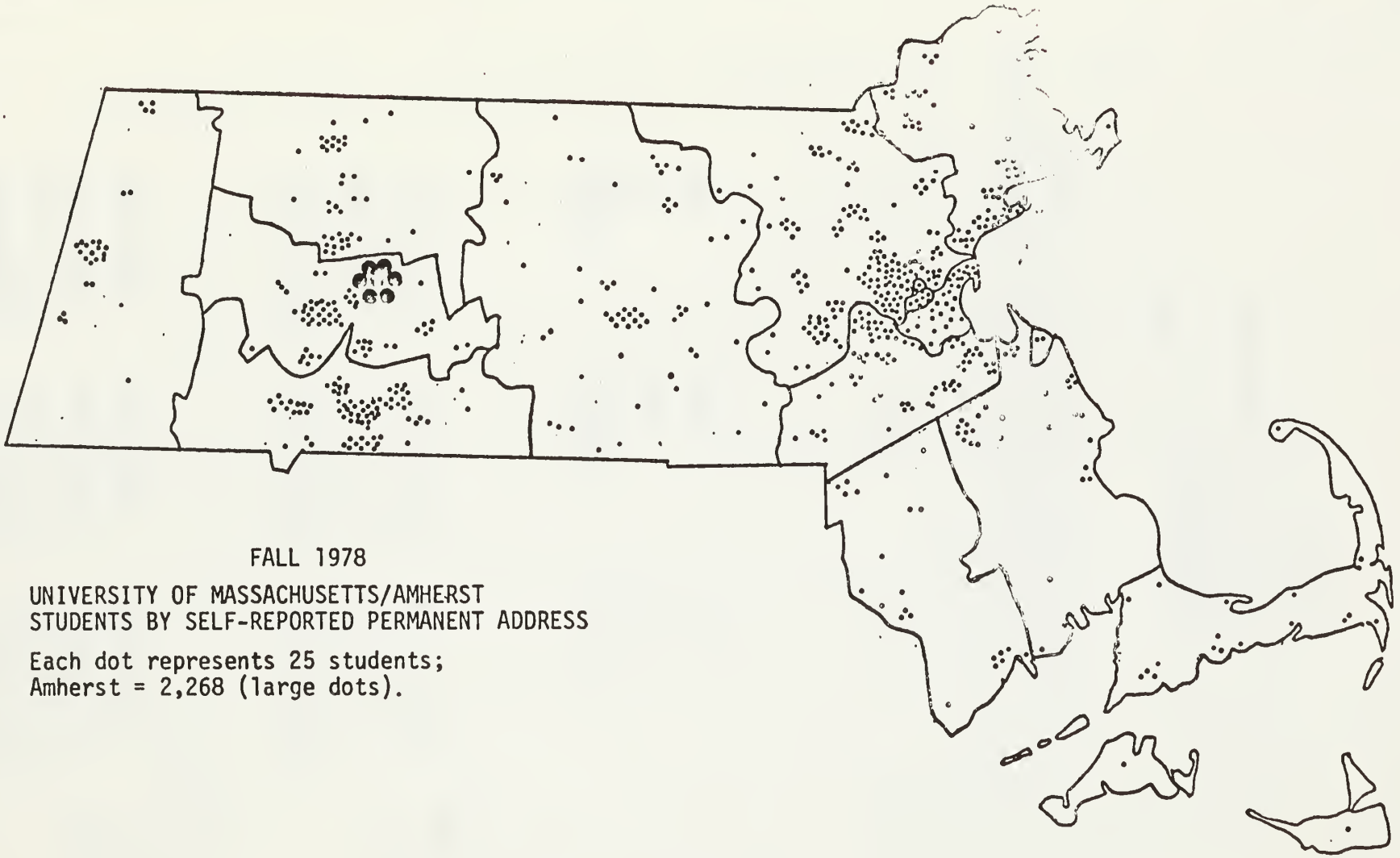
The following tables present data on the Amherst Campus which is not included in other sections of this report. Table A-1 gives statistical data on the operations of residence and boarding halls since 1978. The last two tables present a picture of the geographic distribution of Amherst undergraduate and graduate students. This shows that the educational services of the University are delivered to citizens from every area of the Commonwealth.

Amherst

Residence & Boarding Hall Statistics

FY78-80

	78	79	80
Number of Students in Residence Halls	10,344	10,487	10,362
Fees (Average)			
Board	$778	$826	$854
Room	795	805	843
Total	$1,573	$1,631	$1,697
Total Expenditures			
Boarding Halls	$8,593,300	$9,577,100	$9,717,600
Residence Halls	8,404,219	10,343,252	10,229,508
Total	$16,997,219	$19,920,352	$19,947,108
Debt Service Per Year			
Boarding Halls	$863,000	$863,000	$863,000
Residence Halls	3,185,842	2,749,634	3,045,503
Total	$4,148,842	$3,612,634	$3,908,503



FALL 1978

UNIVERSITY OF MASSACHUSETTS/AMHERST
STUDENTS BY SELF-REPORTED PERMANENT ADDRESS

Each dot represents 25 students;
Amherst = 2,268 (large dots).

GEOGRAPHICAL DISTRIBUTION BY COUNTY

	FALL 1976						FALL 1977						FALL 1978					
	UNDERGRADUATE*		GRADUATE		TOTAL		UNDERGRADUATE		GRADUATE		TOTAL		UNDERGRADUATE		GRADUATE		TOTAL	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
BARNSTABLE	399	2.11	32	.64	431	1.80	410	2.18	36	.70	446	1.86	408	2.14	45	.90	453	1.89
BERKSHIRE	521	2.76	152	3.04	673	2.82	510	2.71	170	3.32	680	2.84	538	2.83	151	3.03	689	2.87
BRISTOL	525	2.78	41	.82	566	2.37	541	2.87	44	.86	585	2.44	520	2.73	34	.68	554	2.31
DUKES	18	.10	---	---	18	.08	14	.07	2	.04	16	.07	21	.11	2	.04	23	.10
ESSEX	1,664	8.81	111	2.22	1,775	7.43	1,559	8.27	96	1.88	1,655	6.91	1,505	7.90	116	2.33	1,621	6.75
FRANKLIN	724	3.83	356	7.12	1,080	4.52	677	3.59	345	6.75	1,022	4.27	665	3.49	323	6.49	988	4.11
HAMPDEN	1,908	10.10	437	8.74	2,345	9.82	1,742	9.25	385	7.53	2,127	8.88	1,604	8.42	390	7.84	1,994	8.30
HAMPSHIRE	2,507	13.27	1,526	30.53	4,033	16.88	2,464	13.08	1,526	29.85	3,990	16.66	2,480	13.03	1,403	28.19	3,883	16.17
MIDDLESEX	3,851	20.39	301	6.02	4,152	17.38	3,779	20.06	306	5.98	4,085	17.05	3,673	19.29	300	6.03	3,973	16.54
NANTUCKET	12	.06	3	.06	15	.06	15	.08	3	.06	18	.08	21	.11	2	.04	23	.10
NORFOLK	1,903	10.07	134	2.68	2,037	8.53	1,912	10.15	120	2.35	2,032	8.48	1,947	10.23	107	2.15	2,054	8.55
PLYMOUTH	760	4.02	40	.77	800	3.32	797	4.23	44	.86	841	3.51	796	4.18	46	.92	842	3.51
SUFFOLK	631	3.34	102	2.04	733	3.07	609	3.23	116	2.27	725	3.03	538	2.83	73	1.47	611	2.54
WORCESTER	1,635	8.66	204	4.82	1,839	7.70	1,563	8.30	242	4.73	1,805	7.54	1,412	7.42	235	4.72	1,647	6.86
TOTAL REPORTING	17,058	90.30	3,439	65.92	20,497	85.03	16,592	88.07	3,435	67.18	20,027	83.61	16,128	84.71	3,227	64.84	19,355	80.59
OTHER	1,832	9.70	1,778	34.08	3,610	14.97	2,248	11.93	1,678	32.82	3,926	16.39	2,912	15.29	1,750	35.16	4,662	19.41
GRAND TOTAL	18,890	100.00	5,217	100.00	24,107	100.00	18,840	100.00	5,113	100.00	23,953	100.00	19,040	100.00	4,977	100.00	24,017	100.00

*. Includes Stockbridge

BOSTON CAMPUS
GEOGRAPHIC AND AGE DISTRIBUTION

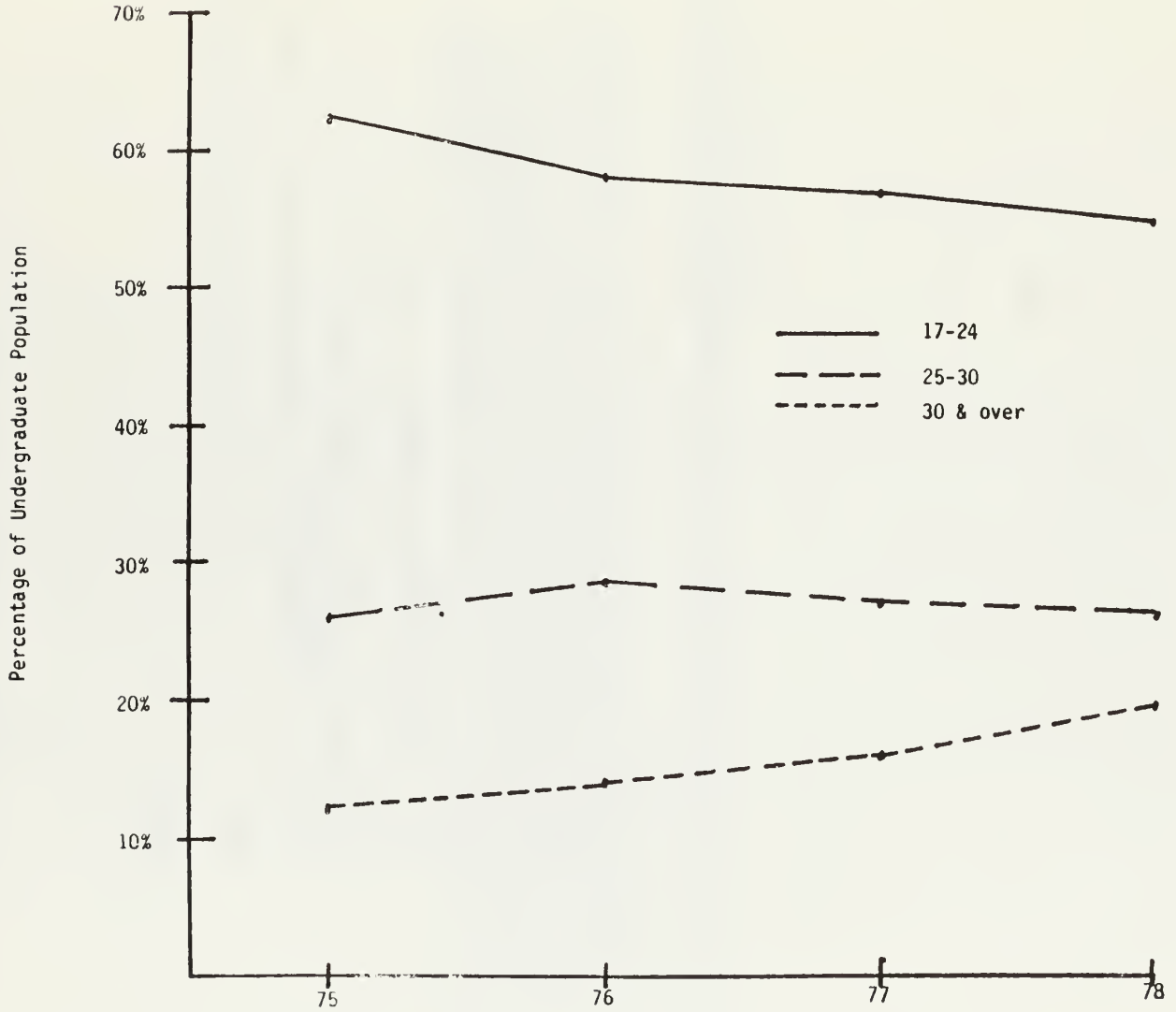
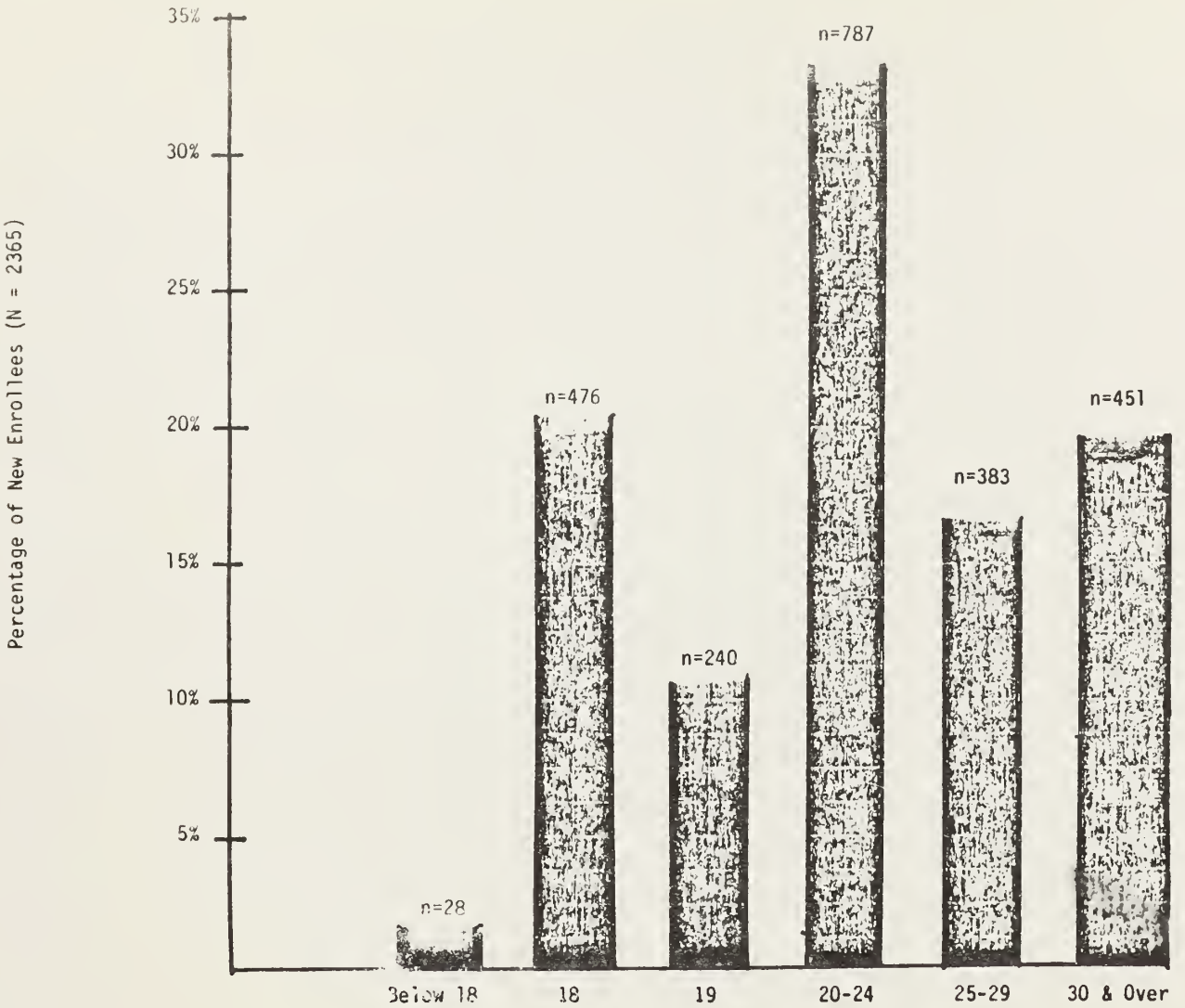
Table B-1 shows the percentage and numbers of students from the urban impact areas served by the Boston Campus, and shows the concentration of the Fall 1978 undergraduate population from within the immediate Boston area. Tables B-2 and B-3 give data on the age distribution of the Boston Campus undergraduates, with B-2 showing historical trends toward increasing numbers of older students. Table B-3 gives the most recent age-breakdown of new Fall 1979 enrollees.

Geographic Distribution of Entire Undergraduate
Enrollment by Impact Area, Fall 1978

	Number	Percent
Impact Area 1 (Dorchester and South Boston)	854	10.9%
Impact Area 2 (Other areas within City of Boston)	1935	24.7%
Impact Area 3 (Inner suburbs - within Rt. 128)	3128	40.0%
Impact Area 4 (Outer suburbs - between Rt.128 & Rt.495)	1059	13.5%
Other Massachusetts Towns (beyond Rt. 495) or Out-of-State*	848	10.8%
Total	7824	100.0%

*During the Fall, 1978 semester 4% of our students were billed as out-of-state students (1% were foreign students)

UNIVERSITY OF MASSACHUSETTS/BOSTON
AGE OF UNDERGRADUATES
75-78



UNIVERSITY OF MASSACHUSETTS/BOSTON
AGE OF 1979 NEW ENROLLEES